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NEW CENTURY

Computer Science

Practical Note Book

*For Class ICS
Part - II*

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Before you start on the construction of a practice database, you should review all the basic concepts of database design. It is important to thoroughly plan your database before you begin its construction.

? **What is data?**

Raw facts & figures are called data. Unorganized facts which are to be proceeds in order to get some meanings, data are simply value or sets of values. The data can denote a collection of facts that can serve as a base to the computer program.

? **What is information?**

The processed and manipulated form of data is called information. It is more meaningful than data. It is used for making decisions. Data is used as input for processing and information is the output of this processing.

? **What is data processing?**

Data processing is any computer process that converts data into information or knowledge. The processing is usually assumed to be automated and running on a computer. The processing of manipulating data to achieve the required objective and results is called data processing. The software is used to process raw data. The software converts raw data into meaningful information.

? **What is data manipulation?**

The process of applying different operations on data is called data manipulation. It includes the operations of classifying, calculating, sorting and summarizing. Data manipulation is the way in which data can be manipulated and changed.

? **What is field?**

A field is a combination of one or more character. It is the smallest unit of data that can be accessed by the user. A field is identified uniquely by field name.

? **Why it is important to specify data type and size of a field?**

The data type of a field specifies the type of data that can be stored in the field. The field size defines the maximum number of character that can be stored in a field.

? **What is meant by a record?**

A collection of related fields treated as a single unit is called record. For example, a Student Record includes a set of fields about the student such as Roll Number, Student Name, Class, Section, Phone No and Address etc.

② What is a file?

A collection of related records treated as a single unit is called file. Files are stored in disk like hard disk, CD, DVD or USB etc. a student file may contain the many records of students.

② What is file name and file extension?

The file name consists of file name with its extension. The name and extension of file is separated by dot. The extension is normally assigned by the software in which it is created such as **student.doc**.

② What is an index?

An index consists of key values and the corresponding disk address for each record in the file. Index refers to the place on a disk where a record is stored. The index file is updated whenever a record is added or deleted from the file.

② What is database?

A database is a collection of logically related data sets or files. These files are normally of different natures and are used for specific purposes. The files may be organized in different ways to meet different processing and retrieval requirements of the users.

② What is the meaning of related database?

The word related means that a database is normally created to store the data about a particular topic.

② What is the meaning of efficient database?

The word efficient means that the user can search the required data quickly.

② What are the four major components of database system?

The four major components of the database systems are data, hardware, software and personnel.

② What are the different objectives of the database?

There are three basic objectives of the database. These objectives are as follows:

- ◆ **Data Integration:** It means that data is logically centralized even if it may be located at different locations.
- ◆ **Data Integrity:** It means the reliability and accuracy of data.
- ◆ **Data Independence:** It means that the data and the application program are separated from each other.

② What are types of logical database models?

There are three types of logical database models. These models are as follows:

- ◆ Hierarchical Model
- ◆ Network Model

❓ **What is Database Management System (DBMS)?**

A database management system (DBMS) is a collection of programs that are used to create, maintain and access database in a convenient and efficient manner. DBMS uses database manager software to control the overall structure of a database.

❓ **What are the main objectives of DBMS?**

The important objectives of the DBMS are shareability, availability, evolvability and database integrity.

❓ **What are the features of DBMS?**

The important features of the DBMS are data dictionary, utilities, query language, report generator, access security, backup and recovery.

❓ **What is data dictionary?**

Data dictionary is used to store data definitions or describes of the structures of data used in database. It may also monitor the data that is entered. It ensures that data is according to the data definition rules.

❓ **What is the purpose of backup and recovery?**

Backup is used to store a copy of important data in database. The recovery process uses the data in backup if the original data is damaged due to any reason.

❓ **What are the advantages of DBMS?**

Advantages of DBMS are data independence, support of complex data relationship, data security, backup and recovery.

❓ **What is the meaning of data independence?**

Data independence means that data and application programs are separate from each other. The user can change data storage structures and operations without changing the application programs. The user can also modify programs without reorganization of data.

❓ **What are the disadvantages of DBMS?**

Disadvantages of DBMS are additional system overhead, additional training, need for data dictionary and possible problems due to wrong type of database.

❓ **Give some names of the large databases.**

The databases are NADRA, ATM machines, Google database etc.

? What is entity?

An entity is any thing about which information is stored in the database. The entity must have a unique identifier. The Identifier is composed of one or more attributes.

? What is view? Also define its purpose.

A view is also called virtual table. The basic purpose of using views is to keep data safe and secure from unauthorized and illegal users. A view can also display records from multiple tables. The views provide more flexibility and security in displaying data.

? What is a key? Also define its purpose.

Single or combination of multiple fields is called key. Its purpose is to access or retrieve data rows from table according to the requirement. The key are defined in tables to access or sequence the stored data quickly and smoothly. Key is also use to create links between different tables.

? What are the types of Keys?

Different types of keys are use in databases. These keys are as follows:

- ◆ Primary Key
- ◆ Secondary Key
- ◆ Candidate Key
- ◆ Alternate Key
- ◆ Composite Key
- ◆ Sort Key
- ◆ Foreign Key

? What is primary key?

The attributes or combination of attributes that uniquely identifies a row or record in a relation is called primary key.

? Who is a user or end user?

A user or end user is a person who uses computers for his specific needs. He/She might have a moderate knowledge of computers, computer science and information technology. He/She does not need to know in-depth knowledge of computer system.

? Who is data administrator?

A data administrator is a person uses computers for his specific needs. He might have a moderate knowledge of computers, computer science and information technology. He does not need to know in-depth knowledge of computer system.

? Who is database administrator?

A database administrator is responsible for the design, implementation, operation, management and maintenance of database. Database administrator is responsible to ensure proper database access and security.

? What is analysis?

A process of studying the existing system is called analysis. The basic purpose of analysis is to know which activities are performed in the current system. The analysis also determines what should take place in the new system.

? What is entity or object?

Anything that is participating in the system is known as data entity or object. Some examples of entities are TEACHER, STUDENT, CLASS etc. An entity represent by a rectangle.

? What is an attribute or property?

The characteristics of an entity are called attributes or properties. Some examples of attributes of TEACHER are Teacher ID, Teacher Name, Phone No etc. An attributes is represent by an oval.

? What is a relationship?

A logical connection between different entities is called relationship. For example, a relationship exists between a TEACHER and STUDENT because teacher teaches student. The entities that participate in a relationship are called participants.

? What is cardinality?

The number of entity occurrences associated with one occurrence of the related entity is called cardinality. It specifies how many instances of an entity relate to one instance of another entity. It means that cardinality specifies the maximum number of relationships.

? What are the types of relationship?

The relationship can be:

- ◆ One to one
- ◆ One to many
- ◆ Many to many

? What is modality?

Modality describes relationship as either mandatory or optional. It specifies absolute minimum number of relationships. The relationship is called optional if minimum number is zero. The relationship is called mandatory if minimum number is one or more.

❓ What is an Entity-Relationship (ER) diagram?

A graphical representation of entities in a database and relationships between them is called Entity-Relationship Diagram or ER-Diagram. The rectangle is commonly used to represent entities. The diamonds are normally used to represent relationships and ovals are used to represent attributes.

❓ What is meant by database integrity?

Database integrity means the correctness and consistency of data. It is another form of database protection. Security means data must be protected from unauthorized operations.

❓ What is a synonym?

A type of problem that exists in relations is called synonym. A synonym is created when two different names are used for the same information or attribute. The name of attribute must be same if it exists in two or more entities.

❓ What is meant by redundancy?

Duplication of data in multiple files is called redundancy. It is a type of problem that exists in relations. It is created when the same information is unnecessarily stored in two different ways or forms.

❓ What is normalization?

A process of converting complex data structure into simple and stable data structure is called normalization. It is a process of analyzing the dependencies of attribute within entities. The attributes for each entity checked against three sets of rules connectively.

❓ What is partial dependency?

A type of dependency in which one or more non-key attribute are functionally dependent on part of primary key is called partial dependency.

❓ What is transitive dependency?

The transitive dependency is a type of functional dependency between two or more non-key attributes. It exists if a non-key attribute depends on any another non-key attribute.

❓ What is meant by RDBMS?

RDBMS stands for Relational Database Management System. It is a collection of programs that manages the complexity of a relation database. A database in which data is stored in relations called RDBMS.

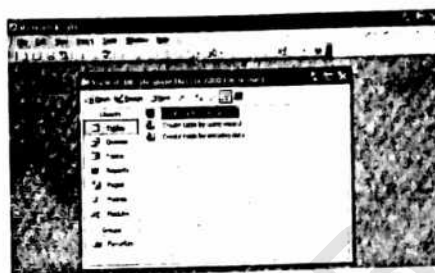
❓ What is MS Access?

Microsoft Access is a powerful, easy to learn, relational database application for Microsoft Windows. Microsoft Access is a powerful data management tool that

allows you to input, store and report data in an attractive and efficient way. Although Access has templates and wizards to help you easily set up a database that can suit simple purposes, it can also run extremely advanced functions.

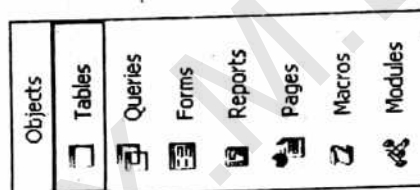
? What is the MS Access Database Window?

Database window is the command center for a database. The Database window allows you to view, create, edit and modify database objects.



? What is the Objects Bar?

The Objects bar categorizes the different types of database objects. Each type of database object has its own icon to view a type of object, click its icon on the Objects bar.



? What are the database objects?

Tables Queries Forms Reports Pages Macros Modules

Database objects are the basic components that make up a database. Database objects include tables, queries, forms, reports, pages, macros and modules.

? What is title bar?

Microsoft Access

Displays the name of the program you are currently using (Microsoft Access). The title bar appears at the top of all Windows programs, having three buttons.

? What is menu bar?

File Edit View Insert Tools Window Help

Displays a list of menus you use to give commands to Access. Clicking a menu name displays a list of commands for example clicking the **Edit** menu name would display different formatting commands.

File: File-related commands to open, close, print and create new files.

Edit: Commands to copy, cut, paste, find and replace text.

View: Commands to change how the screen is displayed.

Insert: Items that you can insert into a database, such as graphics and charts.

Format: Commands to format fonts, cell alignment and borders.

Records: Commands to add, delete, sort and filter information.

Tools: Tools such as the spell checker and macros. You can also change the default options for Microsoft Access here.

Window: Commands to display and arrange multiple windows, if you have more than one file open.

Help: Provides help with using Microsoft Access.

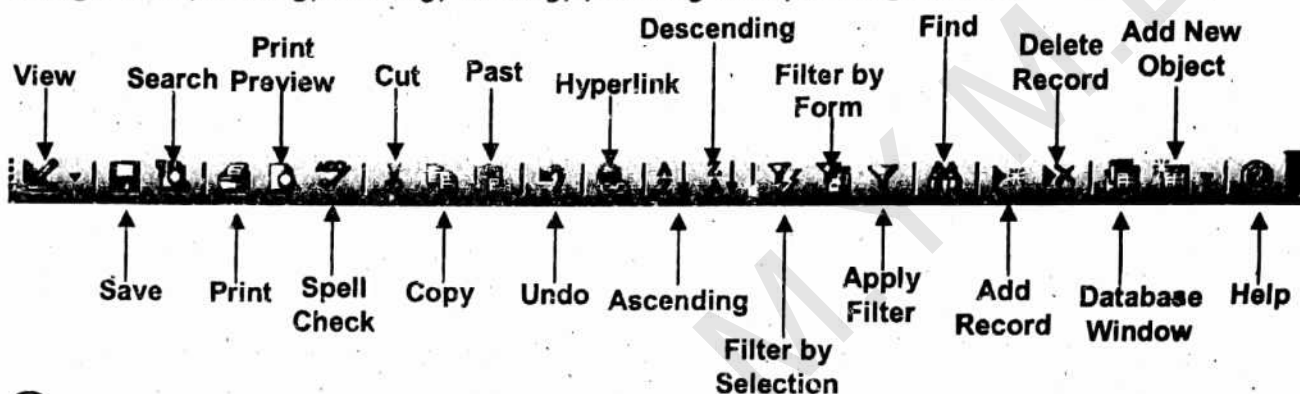
? What are toolbars?



Toolbars are shortcuts they contain buttons for the most commonly used commands, instead of having to wade through several menus. The toolbars in Access change depending on what you are working on. The database toolbar is the toolbar currently displayed contains buttons for the Access commands that you will use most often, such as opening and printing databases.

? What is table toolbar?

The table toolbar is the toolbar that contains buttons for the access commands that you will use most often for apply commands on table, such as opening in design view, saving, sorting, finding, deleting and printing tables.



? What is status bar?



Status bar displays messages and feedback. The Status bar is especially important in Access since it can give you meaningful information and messages when you are entering information into a database.

? What is the use of MS Access?

MS Access is used to store and manipulate a large amount on information. It is used to crate quires, forms and reports easily. It allows entering, updating and reporting information.

? What is MS Access IDE?

IDE stands for Integrated Development Environment. It is a collection of facilities provided to the users. It is used to create database and database applications. IDE simplifies the tasks of creating and using a database.

? What is database wizard?

A database wizard is a set of steps that guides the user to crate a database easily. It includes choosing a database template, selecting, field, making customizations, adding pictures and the database.

② **What is the application window of MS Access?**

MS Access application window follow standard layout of all Microsoft applications. It contain different object that are used to design and create database.

② **What are the parts of application window?**

Different parts of application window include title bar, toolbars, menus, scroll bars and status bar.

② **What is the use of database window in MS Access?**

The database widow in MS Access is used to organize all objects in the database. The default table listing is used to displays all tables in the current database. It is also used to create new tables.

② **What are the buttons available on MS Access database window?**

The buttons on MS Access database windows include Tables, Queries, Forms, Reports, Pages, Macros and Modules.

② **What is database object?**

A component of a database system is called database object. MS Access provides various objects that are used to store and retrieve data from database.

② **What are the major database objects?**

The major objects of database are:

- ◆ Tables
- ◆ Queries
- ◆ Forms
- ◆ Reports

② **What is a table?**

Table is a two-dimensional array of data that contains descriptive information about an entity in called table. Table is the most important object of a database. A Table is where all of the data is kept and arranged. The layout looks just like an Excel spreadsheet. It is important to keep data separated into related tables instead of using only one in order to decrease redundancy and manipulate the data more efficiently. It is the central concept in relational databases. All data in a relational database is stored in tables.

② **What are the parts of table?**

A table consists of two parts:

Record (Row): A set of related fields is called record. Records are also called rows.

Fields (Column/Attribute): A field is a named column of a table.

② What are the characteristics of the table?

A table consists of five characteristics:

1. The field of table contains a single value.
2. The name of each field is unique.
3. The order of columns in the table is not important.
4. The order of rows in the table is not important.
5. A table contains no duplicate value.

② What is the degree of a relation?

The number of fields in a relation is called degree of relation. The degree of a table is usually not changed once the table has been created. A table with five fields has a degree of 5.

② How many table views are available in MS Access?

We have two types of view available in MS Access, these are:

1. Design View
2. Datasheet View

② What is design view? Also define its uses.

The table view that is used to design the structure of a table is called design view. It is used to specify field name, data types and description of fields. Primary key is also specified in design view. The structure of an existing table can also be changed in design view.

② What is datasheet view? Also define its uses.

The table view that is used to enter, delete or modify data in a table is called datasheet view. The table in this view is displayed in rows (records) and columns (fields). The name of each field is displayed at the top of the columns as header and each row contains a complete record.

② What is the name of a field?

Field name is the name of a column. It should represent the contents of the field such as Roll No, Name, Class etc. the name of the field cannot exceed 64 characters in length. It may include spaces but the use of spaces in field name is not a good practice.

② Why is data type assigned to a field?

Each field must be assigned a particular data type. The data type specifies the type of data that can be stored in the field. Common data types in MS Access are Text, Number, Date, Currency etc.

② What is AutoNumber data type?

AutoNumber data type is used to generate the text number automatically when a new record is added. It creates a unique number for each record. The value starts from 1 and is incremented by 1 in each record.

② What is field property?

Field property is used to define how data will be entered, stored and displayed in MS Access. The properties of each field can be set in design view.

② What is the use of default value?

In some cases the value of all records in a certain field is same. A default value can be set in this case. The user does not need to type the same value again and again. The property set the Default value is used to set default value for a field.

② What are the field validation rules?

The validations rules specify the criteria for the data entered in the worksheet. A message can be displayed to the user if the data violates the rules set for the field. For example, a validation rule $<> 9$ indicates that 9 cannot be entered in the record.

② What is the use of input mask?

An input mask controls the value of a record and sets it in a specific format. It is similar to format property but it displays the format on datasheet before the data is entered.

② What are the methods of modifying in a table?

- ◆ Inserting and Deleting Fields
- ◆ Adding Records
- ◆ Editing Records
- ◆ Deleting Records
- ◆ Resizing Rows and Columns

② What are the freezing columns?

The user can freeze the columns on an Access table. It helps the user view certain columns easily if the datasheet has many columns and the required columns are not visible.

② What are the hiding columns?

The columns can be hidden from datasheet temporarily. The hidden columns are not be deleted from the database.

② What is sorting?

The process of arranging data or records in a sequence is called sorting. The data can be stored in ascending or descending sort.

② What is ascending sort?

Ascending sort is a sorting technique in which the smallest data is placed at first position and the largest data is placed at last position.

❓ What is descending sort?

Descending sort is a sorting technique in which the largest data is placed at first position and the smallest data is placed at last position.

❓ What is filter?

A filter is used to extract the records that match a set of criteria. Filters are basically queries but they only appear to open tables or forms.

❓ How many types of filters?

There are two types of filters:

1. Filter by Selection
2. Filter by Form

❓ What is relationship?

A logical connection between different entities is called relationship. For example, a relationship exists between a TEACHER and STUDENT because teacher teaches student. The entities that participate in a relationship are called participants.

❓ What are the types of relationships?

There are three types of relationships:

1. One to One Relationship
2. One to Many Relationship
3. Many to Many Relationship

❓ What are the advantages of relationships?

Relationship provides many advantages. It provides the facilities of referential integrity, joining and indexes.

❓ What is query?

A query is a statement that extracts specific information from database. A query is created by specifying fields to display from a table or query. It can also specify criteria on one or more fields for extracting data. A Query is used to extract information from a table or groups of tables in order to manipulate the arrangement of the data. Queries are particularly useful if you want to look at information categories that are not contained in the same table.

❓ What are the uses of queries?

- ◆ Extract records according to the specific criteria
- ◆ Choose the fields to display in the result
- ◆ Sort the records in a specific order
- ◆ Calculate fields and summarize data

? What are the types of queries?

- ◆ Select Queries
- ◆ Action Queries
- ◆ Crosstable Queries
- ◆ Parametric Queries
- ◆ SQL Queries

? What is a join?

A query that extracts data from multiple related tables is called join. A join uses the relationship of the table for extracting data from the tables. A join searches the required records in the first table and then searches the corresponding record in the second table.

? What is the use of Query Wizard?

The Query Wizard in MS Access helps the user to create a select query easily. It consists of simple steps to create query.

? What are wild cards?

Wild card is a special symbol that is used in queries to search data. Some important wild cards are ?, *, #.

? Define criteria in a query?

A condition used to limit the number of rows extracted from database is called criteria. If a query contains any criteria it retrieves only those records that match with the specified criteria.

? How is criteria specified in query?

Criteria are specified with the help of wild cards. Wildcards are special symbols that are used to extract particular records from the database.

? What is a form?

A window that consists of visual components is called form. Forms are used to interact with database through graphical user interface. A Form is a visually appealing way to put information into a table. The boxes in the form are connected with tables within the database, which receive the data when the form is filled in.

? What are the advantages of form?

The advantages of forms are as follows:

- ◆ Easier to use and user-friendly
- ◆ No technical knowledge required
- ◆ Time saving
- ◆ Flexibility

② What are types of forms?

- ◆ Columnar form
- ◆ Tabular form
- ◆ Database form
- ◆ Justified form

② What is columnar form?

Columnar form is used to display one record at a time. It displays textboxes and labels. The textboxes represent the fields of the table or query. The labels represent the names of the fields.

② What is tabular form?

Tabular form is used to display many records at one time. It displays records as a table. Each row in this form displays one record of the table.

② What is datasheet form?

Datasheet form is used to display many records at one time. It displays records in datasheet view of MS Access. Each row in this form displays one record of the table.

② What is the list box?

List box is used to display a list of item in forms. The user can select the desired item from the available items. This object is used if the possible values are small and limited for a certain field in the form. The list box shows all the item of the list.

② What is the combo box?

Combo box is used to display a list of item in forms. The user can select the desired item from the available items. This object is used if the possible values are small and limited for a certain field in the form. The combo box shows one item at a time.

② What is check box?

The check box is used to display yes/no, true/false or on/off values. The user can select any or all values from a group of check box.

② What is option button?

The option button is used to display yes/no, true/false or on/off values. The user can select only one value from a group of option buttons.

② What is command button?

A command button is used to execute different commands by clicking on it. The caption of the command button indicates the type of command executed by the button.

② What is report?

Reports are the output of a database application. The user can generate different types of reports by manipulating the database. The information on the reports is arranged in different styles. The reports may contain graphs and charts etc. A Report is an attractive method with which to present the information from the database.

② What are the uses of reports?

- ◆ Reports present the requirement information in formatted style.
- ◆ Reports provide flexibility to present the same data in different ways.
- ◆ Reports can display information with graphs.

② What are the standard types of reports in MS Access?

- ◆ Columnar Reports
- ◆ Tabular Reports

② What is linking?

The process of linking in MS Access creates a link to an object in another database. The table is not copied to the current database.

② What is switchboard?

A switchboard is a form that is used to navigate database and different perform tasks in database application. It contains user-defined commands with buttons, labels, images or hyperlinks.

② What are the keyboard shortcuts?

Keyboard shortcuts are the combination of keys that are used to perform different tasks. They can save time and the efforts of switching from keyboard to the mouse for executing simple commands.

② What is the main difference between form and report?

The main difference between form and report is that form is used to input the data in database and the report is used for displaying data from table and also printing the data.

Practical: 1

How to start MS Access Database?

Method 1

To start MS Access database, double-click on the Microsoft Office Access shortcut icon on your Desktop.



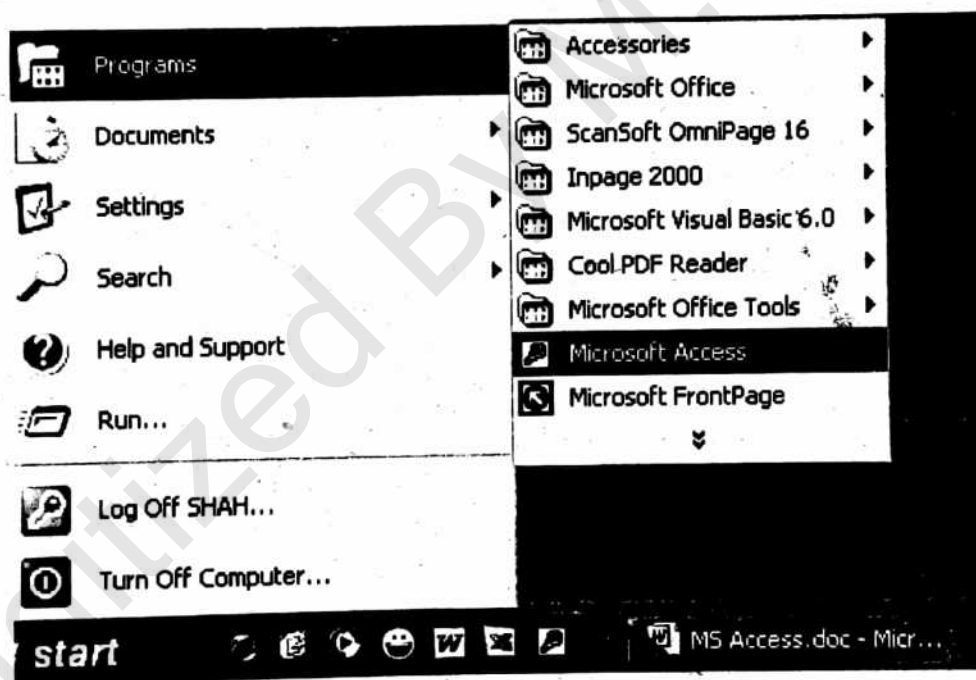
Method 2

Step 1: Click on the **start** button located in the bottom-left corner of the screen to launch the **Start Menu**.

Step 2: Move the arrow up to **Programs**. Then move it across to select **Microsoft Access** from the programs list.

Step 3: Finally Click on **Microsoft Access** to launch it.

The sequence to follow is demonstrated below.



Practical: 2

How to create Database?

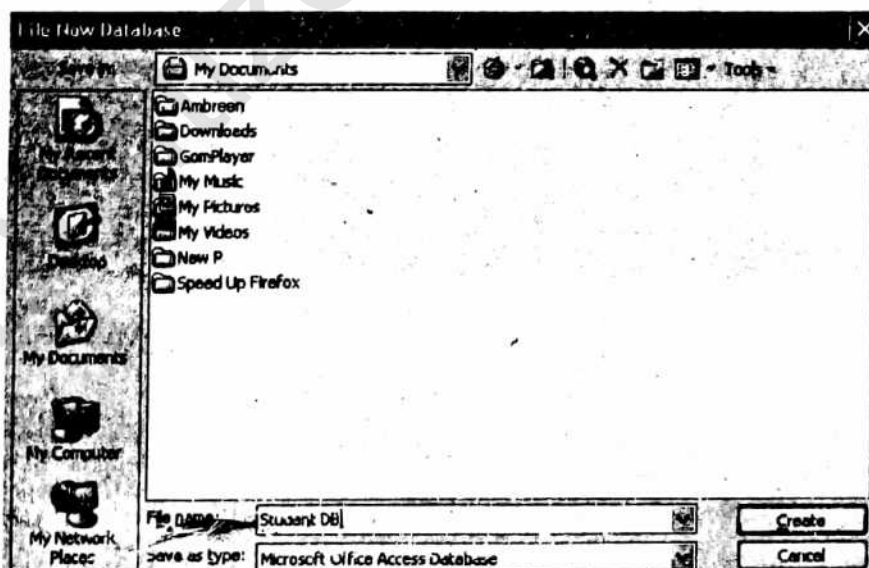
Creating Database When You Start MS Access

Step 1: Select **Blank Access database** option from the opening dialog box.



Step 2: Click on the **OK** button.

Step 3: Immediately Access asks you where you require your new database to be saved and opens the **File New Database** window.

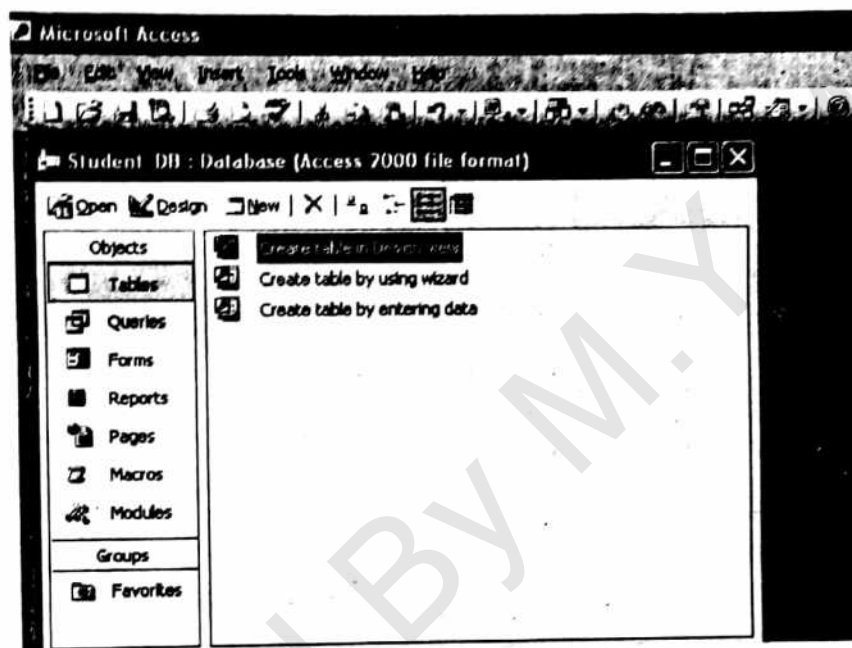


Step 4: Type the name of the database for example **Student_DB.mdb** in the **File name** combo box.

Note: Just like MS Word files are .doc, Excel files are .xls, web pages are .html and the MS Access databases files are .mdb, **MDB** stands for Microsoft Data Base.

Step 5: Find the folder where the database should reside in the **Save in** drop-down menu. The database by default saves in **My Documents** folder.

Step 6: Click on **Create** button to complete your process. The following window will appear:

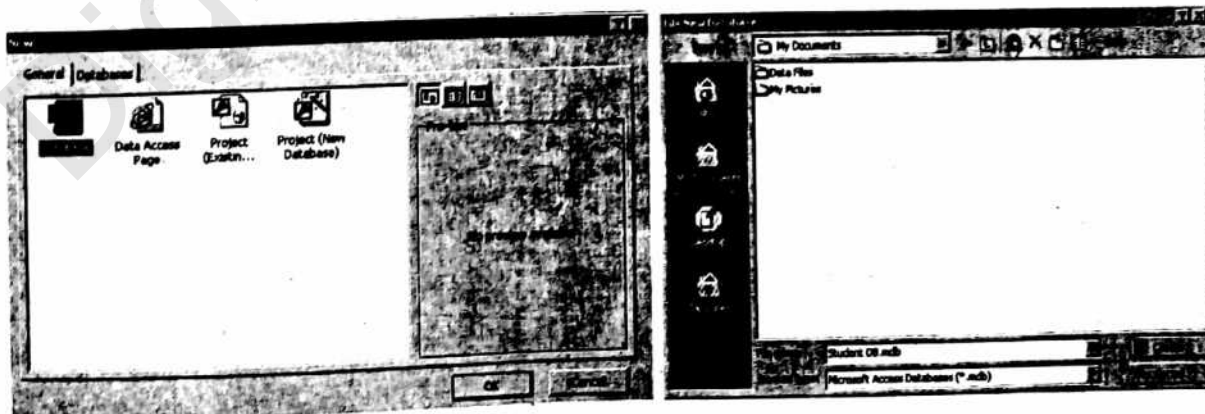


Creating a Database when MS Access is Already Opened

Method 1:


Step 1: Click on **File** from the menu bar.

Step 2: Click on **New** from the File Menu. The new dialog window will appear.



Step 3: Select **Database** icon from **General** tab list (already selected).

Step 4: Click on the  button to display **File New Database** window.


Step 5: Type the file name and click on  button to complete your process.

Method 2:

Step 1: Click on the **New**  icon from the Standard toolbar.

Step 2: The new dialog box window appears. Select database icon from **General** tab list.

Step 3: Click on the  button to display **File New Database** dialog box.

Step 4: Type the file name and click on  button to complete your process.

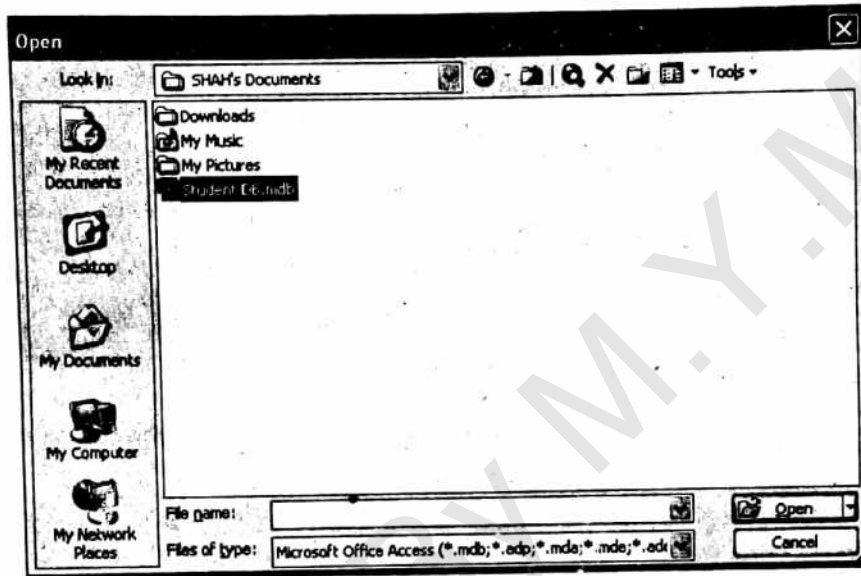
Practical: 3

How to open and close an existing Database?

Opening a Database

Step 1: Click on **File** from the menu bar.

Step 2: Select **Open** from the File Menu. The Open dialog window will appear.



Step 3: Select your database and click on **Open** button to open your database.

Closing a Database

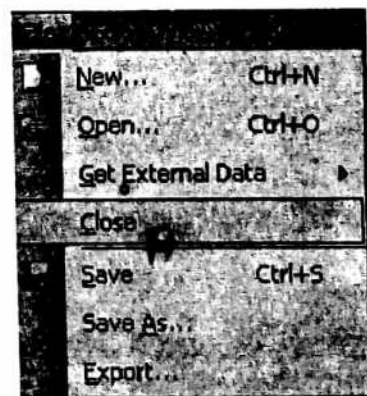
Method 1:

Step 1: Click on **File** from the menu bar.

Step 2: Select **Close** from the File Menu.

Method 2:

Press **Ctrl+F4**



? What are the elements of databases?

A database stores information in an organized way and makes it easy to get information in and out.

Tables store data within the database.

Forms make it easy to put data into tables.

Queries pull out specific data.

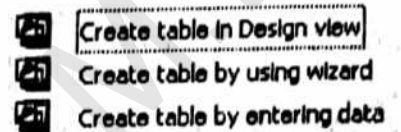
Reports put data in an easily-read format.

? What is a Table?

Tables are grids that store information in a database similar to the way an Excel worksheet stores information in a workbook. Access provides three ways to create a table for which there are icons in the Database Window. Double-click on the icons to create a table.

In Access you have three types of methods to create a table.

1. By Design View
2. By Using Wizard
3. By Entering Data



- ❖ **Create table in Design view** will allow you to create the fields of the table. This is the most common way of creating a table and is explained in detail below.
- ❖ **Create table using wizard** will step you through the creation of a table.
- ❖ **Create table by entering data** will give you a blank datasheet with unlabelled columns that looks much like an Excel worksheet. Enter data into the cells and click the Save button. You will be prompted to add a primary key field. After the table is saved the empty cells of the datasheet are trimmed. The fields are given generic names such as Field1, Field2 etc. To rename them with more descriptive titles that reflect the content of the fields, select **Format** ⇒ **Rename Column** from the menu bar or highlight the column, **right-click** on it with the mouse and select **Rename Column** from the shortcut menu.

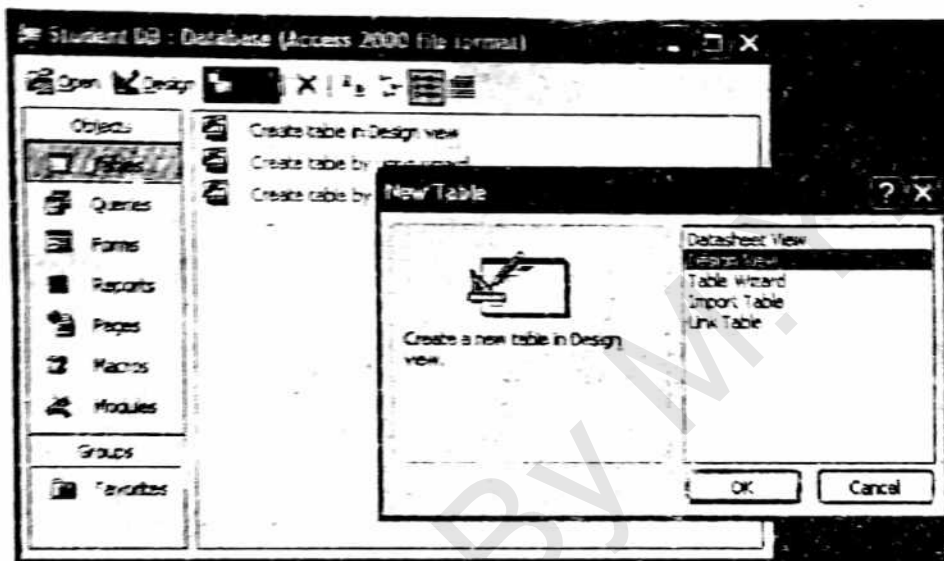
Practical: 4

How to create a Table?

Create Table in Design View

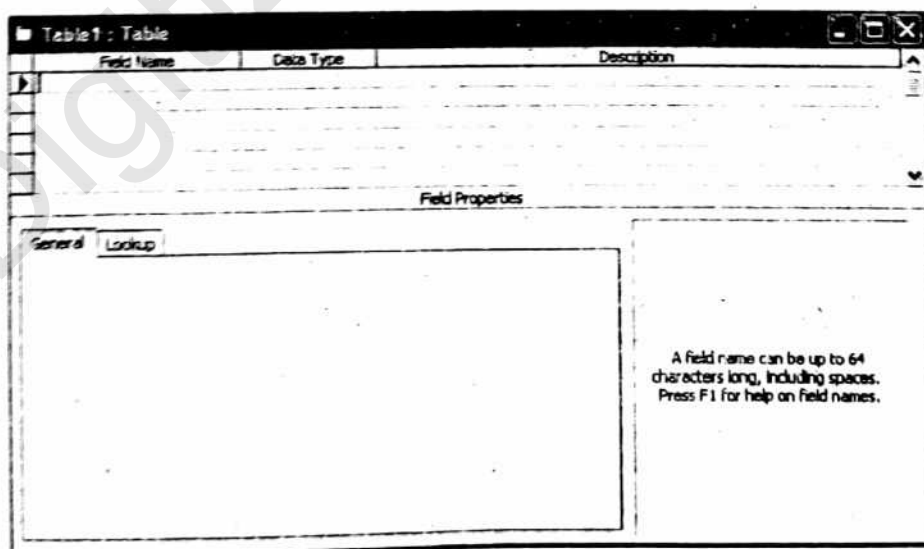
Step 1: Select **Tables** from Database Object List Window.

Step 2: Click on **New** button.



Step 3: From **New Table** select **Design View** Click on **OK**.

This will open a new table with three columns in it i.e. Field Name, Data Type and Description. In the Field Name column type the names of the categories that you want at the top of the columns in your table.



Step 4: Click on **Field Name** and write your first field name such as **Roll No.**

Step 5: Click on **Data Type** and select data type such as **Number**.
The Data Type has many different options, which are listed below:

Data Type	Type of Data Stored
Text	Alphanumeric Characters (1-255 characters)
Memo	Alphanumeric Characters (0-64,000 characters)
Number	Numeric Values
Date/Time	Date and Time Data
Currency	Monetary Data
AutoNumber	Automatic Number Increments
Yes/No	Logical Values: Yes/No, True/False
OLE object	Pictures, Graphs, Sound, Video etc
HyperLink	Link to an Internet Resource
Lookup Wizard	Displays data from another table

Step 6: Click on **Description** and write explanation of this field, as **Roll number of student**. Repeat step 4, 5 and 6 to add more fields in your table as shown below:

Field Name	Data Type	Description
Roll No	Number	Roll Number of the Student
Name	Text	Name of the Student
Father Name	Text	Father Name of the Student
DOB	Date/Time	Date of Birth of the Student
Class	Text	Student Current Class
Section	Text	Student Class Section
Phone No	Number	Student Home Phone Number
Address	Text	Student Home Address

Step 7: Click on **save** icon from the toolbar and write table name in **Table Name:** text box.

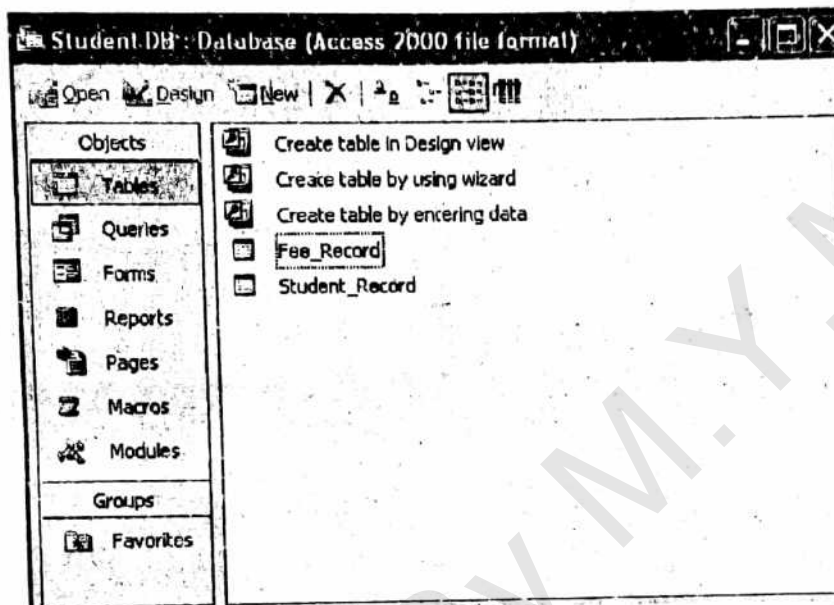
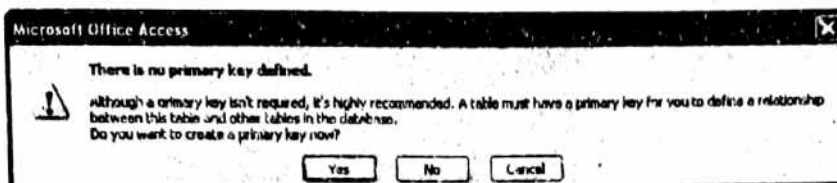
Save As

Table Name: Student_Record

OK Cancel

Step 8: Click on **OK** button.

Step 9: Click on if you want to create primary key by default as AutoNumber (**or**) Click on button to complete the process.



? What is a Primary Key?

In order to manipulate and retrieve data successfully in a database, each record in a table needs to be recognized as being unique to that table. This is achieved by the allocation of a Primary Key, the recognized field or fields in a record which are unique within the table.


Every table must have a unique identifier that is known as the primary key, which gives a unique value to that record. Access can either assign this number through the auto-number Data Type or you can use a unique identifier already associated with the record such as roll number or registration number. You should use this unique number as your primary key.


In the **Student_Record** table primary key will be the **Roll_No**, as each student will be allocated a unique roll number.









Practical: 5

How to apply a primary key?

Step 1: Open your database.

Step 2: Select your table by clicking on table name and click on  **Design**. (OR) Right click on table name and click on design view to open your existing table in design view.

Step 3: Right click on **Roll_No** Field and click on **Primary key** to make roll number field as a primary key. A  key icon should appear by the side of the row.


Stu Record : Table		
	Field Name	Data Type
	Roll No	Number
	Primary Key	Text
		Text
	Cut	Text
	Copy	Date/Time
	Paste	Number
	Insert Rows	Text
	Delete Rows	Text
	Build...	
	Properties	

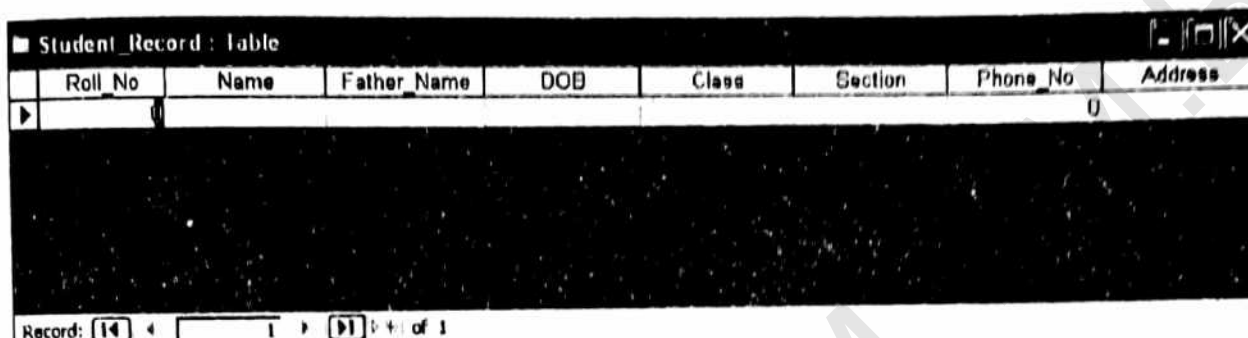
Practical: 6

How to add and delete data in a table?

Adding Records in a Table

Step 1: Click the table icon from the database window.

Step 2: Select your table and click on  icon from the database window (or) double click on your table.

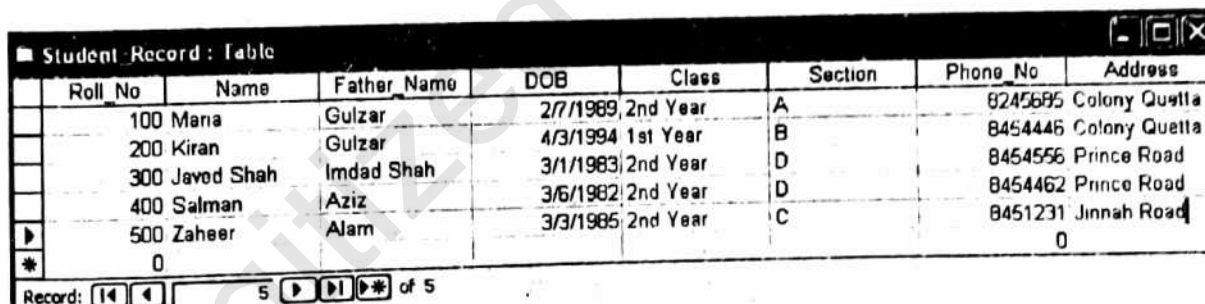


Roll_No	Name	Father_Name	DOB	Class	Section	Phone_No	Address
---------	------	-------------	-----	-------	---------	----------	---------


Step 3: Click on the first field of the table and type your data such as 100 in Roll_No and press enter key.

Step 4: Now you are in next field. Type student name here and again press enter key to proceed.

Step 5: When you finished entering data into all fields click on next record to type new record again and again.




Roll_No	Name	Father_Name	DOB	Class	Section	Phone_No	Address
100	Maria	Gulzar	2/7/1989	2nd Year	A	8245685	Colony Quetta
200	Kiran	Gulzar	4/3/1994	1st Year	B	8454446	Colony Quetta
300	Javed Shah	Imdad Shah	3/1/1983	2nd Year	D	8454556	Prince Road
400	Salman	Aziz	3/6/1982	2nd Year	D	8454462	Prince Road
500	Zaheer	Alam	3/3/1985	2nd Year	C	8451231	Jinnah Road


Step 6: Click on **close**  icon at the top right corner of the table window.

Deleting Records from Table

Method 1

Step 1: Click the table icon from the database window.

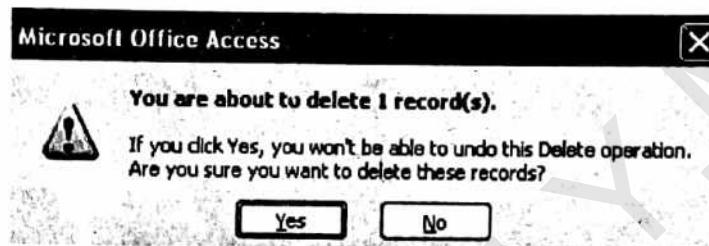
Step 2: Select your table and click on **open**  icon from the database window. Or double click on your table.

Step 3: Click **record selector**  at the left of the record that you want to delete.

Student_Record : Table							
Roll_No	Name	Father Name	DOB	Class	Section	Phone No	Address
100	Maria	Gulzar	2/7/1989	2nd Year	A	8245685	Colony Quetta
200	Kiran	Gulzar	4/3/1994	1st Year	B	8454446	Colony Quetta
300	Javed Shah	Imdad Shah	3/1/1983	2nd Year	D	8454556	Prince Road
400	Salman	Aziz	3/6/1982	2nd Year	D	8454462	Prince Road
500	Zabeer	Alam	3/3/1985	2nd Year	D	8454441	Imdad Road
* 0						0	

Record: 14 of 5


Step 4: Press **Delete** key. Access will ask for a confirmation.



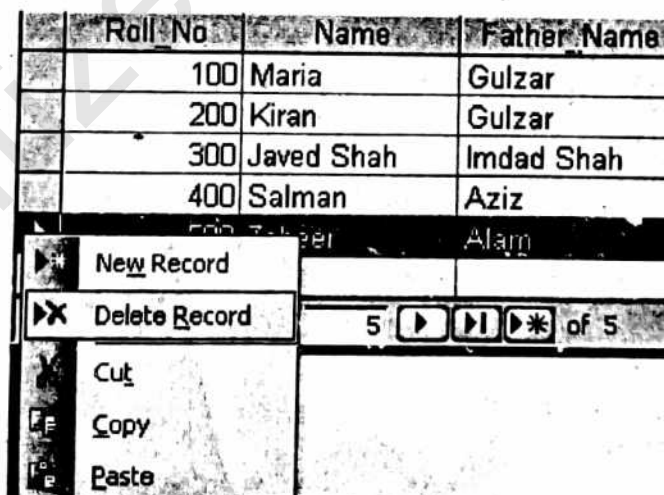
Step 5: Click **Yes** button to complete the process.

Method 2

Step 1: Click the table icon from the database window.

Step 2: Select your table and click on  icon from the database window. Or double click on your table.

Step 3: Right click on record selector  and click on **Delete Record** option from the menu.



Step 4: Access will ask for a confirmation. Click **Yes** button to complete the process.

? What is sorting?

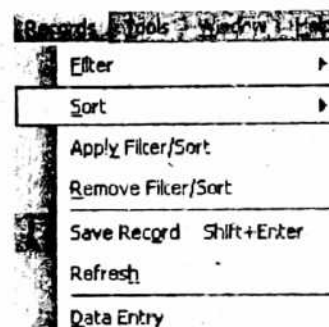
The process of arranging data or records in a sequence is called sorting. Sorting is the process of arranging data into meaningful order so that you can analyze it more effectively. For example, you might want to order students record by name so that you can sort data by name. You can use to sort data as follows:

- ◆ Sort text data into alphabetical order
- ◆ Sort numeric data into numerical order
- ◆ Group sort data to many levels, for example, you can sort on City within Month within Year

Practical: 7



How to sort records in a table?

Manipulate records in MS Access is to Sort the records, either ascending or descending on any of the fields within the table. You can sort the records by a date, alphabetically order or numerically order. Follow these steps to execute a simple sort of records in a table based on the values of one field:



Method 1

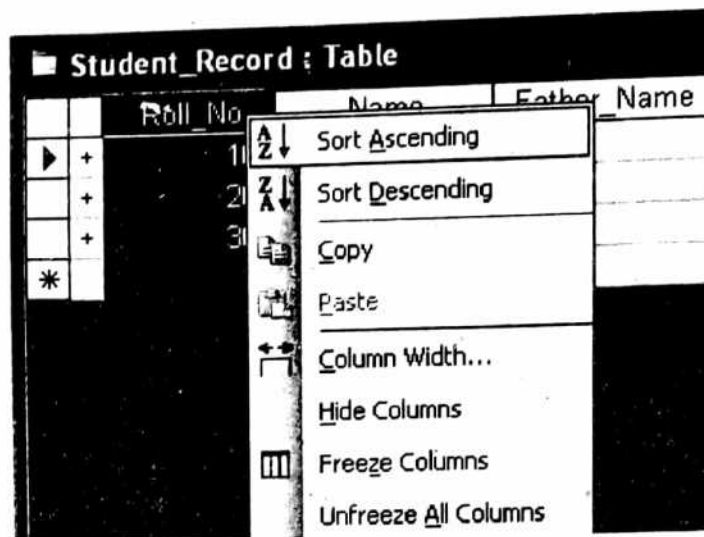
Step 1: Open your existing table and highlight the column that you want to sort by clicking on the column header.

Step 2: Press the  icon for ascending or press  icon for descending (OR) Go to **Record** ⇒ **Sort** and choose **Sort Ascending** or **Sort Descending**; the records should now be sorted according to the column that you selected.

Method 2

Step 1: Open your existing table and highlight the column that you want to sort by clicking on the column header.

Step 2: Right click on the column header to launch the popup menu.



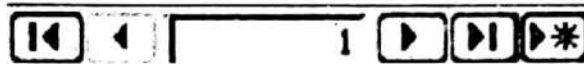
Step 3: Click on Sort Ascending or Sort Descending; the records should now be sorted according to the column that you selected.

To sort by more than one column such as sorting by date and then sorting records with the same date alphabetically, highlight the columns by clicking and dragging the mouse over the field labels and select one of the sort methods stated above.

Practical: 8

How to edit records in a table?

To edit records simply place the cursor in the record that is to be edited and make the necessary changes. Use the arrow keys to move through the record grid. The previous, next, first and last record buttons at the bottom of the datasheet are helpful in many direction through the datasheet.



Practical: 9

How to add, delete and rename fields (column)?

How to Add Field (Column)

Although it is best to add new fields in design view because more options are available, they can also be quickly added in datasheet view. Highlight the column that the new column should appear to the left of by clicking its label at the top of the datasheet and select **Insert** ⇒ **Column** from the menu bar.

How to Rename Field (Column)

Fields can be renamed by right click on field name at the top of the column. A drop down menu will be displayed. Select **Rename Column** from the menu.

How to Delete Field (Columns)

Entire field can be deleted by placing the cursor in the column and selecting **Edit** ⇒ **Delete Column** from the menu bar.

Practical: 10

How to resize rows and columns?

The height of rows on a datasheet can be changed by dragging the gray sizing line between row labels up and down with the mouse. By changing the height on one row, the height of all rows in the datasheet will be changed to the new value.

Column width can be changed in a similar way by dragging the sizing line between columns. Double click on the line to have the column automatically fit to the longest value of the column. Unlike rows, columns on a datasheet can be different widths. More exact values can be assigned by selecting **Format** ⇒ **Row Height** or **Format** ⇒ **Column Width** from the menu bar.

Practical: 11

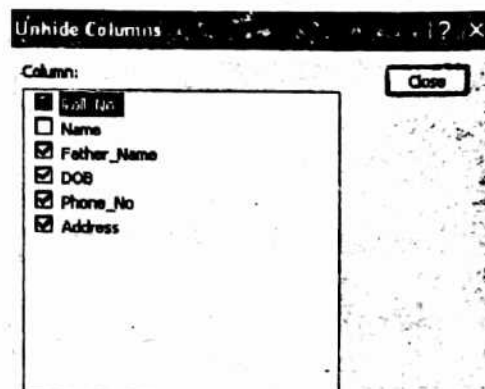
How to freeze and hide columns?

How to Freeze Columns

Similar to freezing panes in Excel, columns on an Access table can be frozen. This is helpful if the datasheet has many columns and relevant data would otherwise not appear on the screen at the same time. Freeze a column by placing the cursor in any record in the column and select **Format** ⇒ **Freeze Columns** from the menu bar. Select the same option to unfreeze a single column or select **Format** ⇒ **Unfreeze All Columns**.

How to Hide Columns

Columns can also be hidden from view on the datasheet although they will not be deleted from the database. To hide a column place the cursor in any record in the column or highlight multiple adjacent columns by clicking and dragging the mouse along the column headers and select **Format** ⇒ **Hide Columns** from the menu bar. To show columns that have been hidden, select **Format** ⇒ **Unhide Columns** from the menu bar. A window displaying all of the fields in the table will be listed with check boxes beside each field name. Check the boxes beside all fields that should be visible on the data table and click the **Close** button.



Practical: 12

How to find and replace data in a table?

Finding Data in a Table

Data in a datasheet can be quickly located by using the Find command.

Step 1: Open the table in datasheet view.

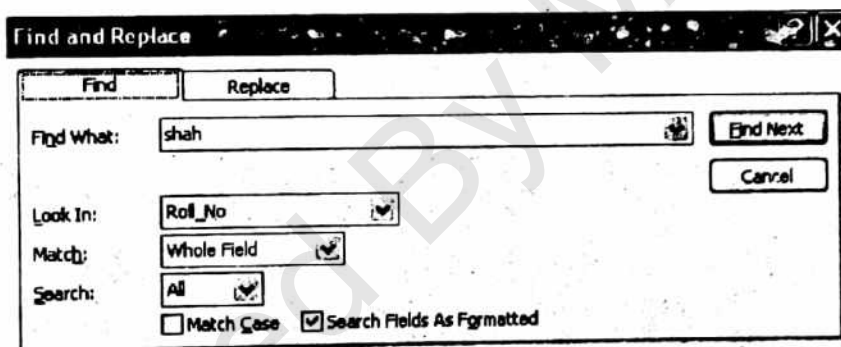
Step 2: Place the cursor in any record in the field that you want to search and select **Edit** ⇒ **Find...** from the menu bar.

Step 3: Enter the value criteria in the **Find What:** box.

Step 4: From the **Look In:** drop-down menu define the area of the search by selecting the entire table or just the field in the table you placed your cursor in during step 2.

Step 5: Select the matching criteria from **Match:**.

Step 6: When all of the search criteria is set click the **Find Next** button. If more than one record meets the criteria keep clicking **Find Next** button until you reach the correct record.



How to Replace Data in Table

Step 1: The replace function allows you to quickly replace a single occurrence of data with a new value or to replace all occurrences in the entire table.

Step 2: Select **Edit** ⇒ **Replace...** from the menu bar **OR** click the **Replace** tab if the Find window is already open.

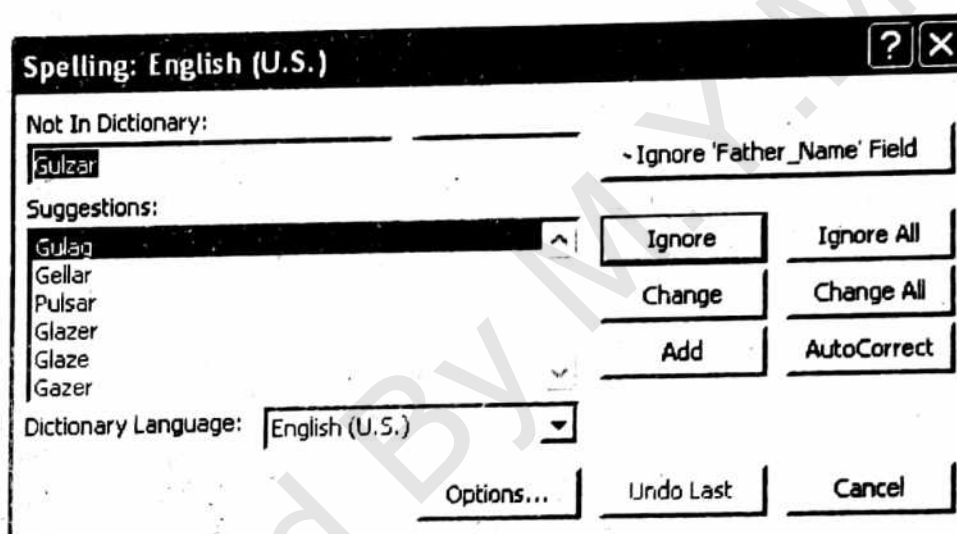
Step 3: Follow the steps described in the Find procedure for searching for the data that should be replaced and type the new value of the data in the **Replace With:** box.

Step 4: Click the **Find Next** button to step through occurrences of the data in the table and click the **Replace** button to make single replacements. Click **Replace All** to change all occurrences of the data in one step.

Practical: 13

How to check spelling and autocorrect?

The spell checker can be used to flag spelling errors in text and menu fields in a datasheet. Select **Tools** ⇒ **Spelling** from the menu bar to activate the spell checker and make corrections just as you would using Word or Excel. The AutoCorrect feature can automatically correct common spelling errors such as two INitial CAPITALs, capitalizing the first letter of the first word of a sentence and anything you define. Select **Tools** ⇒ **AutoCorrect** to set these features.





Practical: 14

How to print a datasheet?

Datasheets can be printed by clicking the **Print** button on the toolbar or select **File** ⇒ **Print** to set more printing options.

? What is Datasheet view and Design view?

Datasheet View	Design View
 Displays the view, which allows you to enter raw data into your database table.	 Displays the view, which allows you to enter fields, data-types and descriptions into your database table.

? What is design view?

The table view that is used to design the structure of a table is called design view. It is used to specify field name, data types and description of fields. Primary key is also specified in design view. The structure of an existing table can also be changed in design view.

? What is datasheet view?

The table view that is used to enter, delete or modify data in a table is called datasheet view. The table in this view is displayed in rows (records) and columns (fields). The name of each field is displayed at the top of the columns as header and each row contains a complete record.

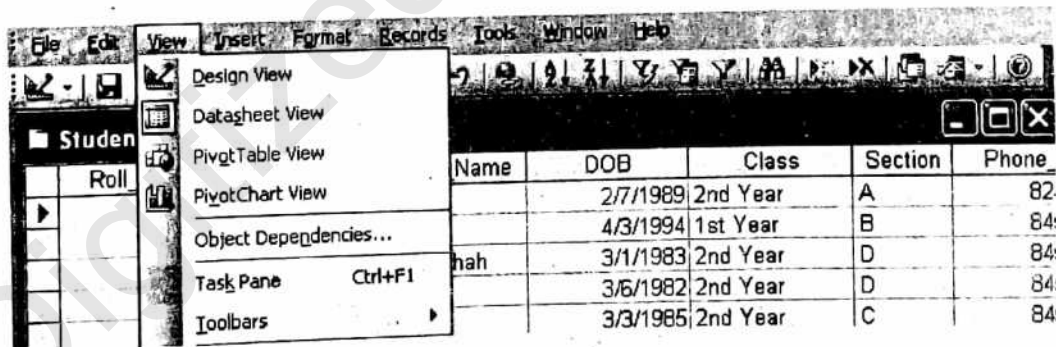
Practical: 15

How to switch between table design view and datasheet view?


Method 1



Step 1: Click on view menu from the menu bar.

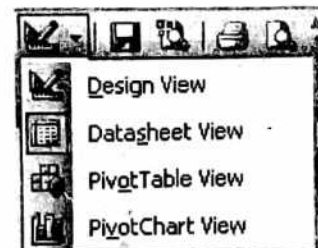
Step 2: Select  Design View or  Datasheet View to change table view.



Method 2

Step 1: Click down arrow  from the standard toolbar.

Step 2: Select  Design View or  Datasheet View to change table view.



? What is a relationship?

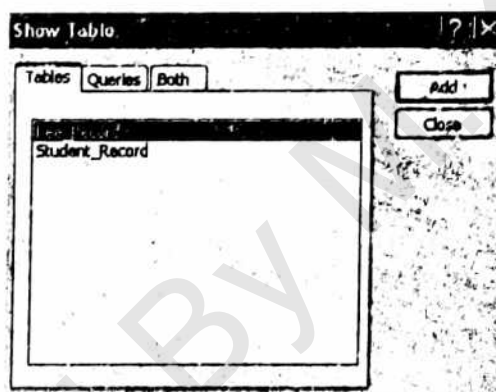
A logical connection between different entities is called relationship. For example, a relationship exists between a TEACHER and STUDENT because teacher teaches student. The entities that participate in a relationship are called participants.



Practical: 16

How to make relationship between tables?

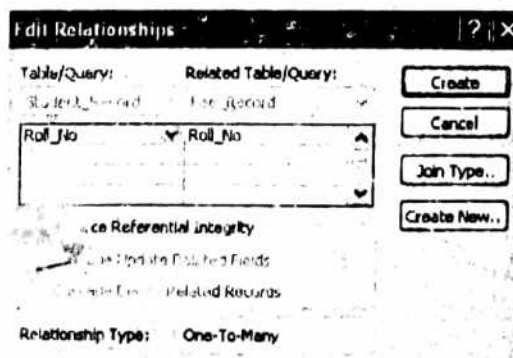
To prevent the duplication of information in a database by repeating fields in more than one table, table relationships can be established to link fields of tables together. Follow the steps below to set up a relational database:

Step 1: Click the  Relationships button on the toolbar.



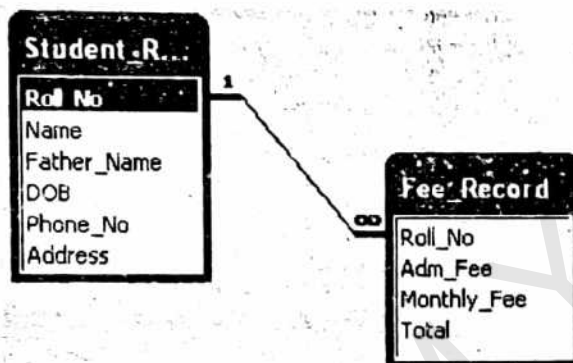
Step 2: From the **Show Table** window, double click on the names of the tables you would like to include in the relationships (or) select the name of the table and click on  button. When you have finished adding tables, click on  button.

Step 3: To link fields in two different tables, click and drag a field from one table to the corresponding field on the other table and release the mouse button. The **Edit Relationships** window will appear.



From this window, select different fields if necessary and select an option from **Enforce Referential Integrity** if necessary. These options give Access permission to automatically make changes to referential tables if a key record in one of the tables is deleted. Check the **Enforce Referential Integrity** box to ensure that the relationships are valid and that the data is not accidentally deleted when data is added, edited or deleted. Click **Create** to create the link.

Step 4: A line now connects the two fields in the Relationships window.



Step 5: The datasheet of a relational table will provide expand and collapse indicators to view sub-datasheets containing matching information from the other table. In the example below, the **Student_Record** database and **Fee_Record** database were related and the two can be shown simultaneously using the expand feature. To expand or collapse all sub-datasheets at once, select **Format** ⇒ **Sub-datasheet** ⇒ **Expand All** or **Collapse All** from the toolbar.

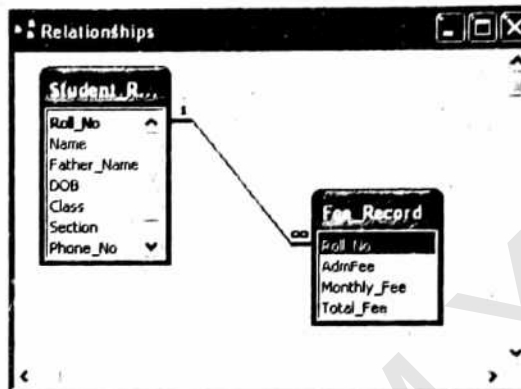
Student_Record : Table						
	Roll_No	Name	Father Name	DOB	Phone_No	Address
▶	100	Maria	Gulzar	3/5/1989	456454564	Brewery Road
		Adm_Fee	Monthly_Fee	Total		
▶		5000	600	5600		
		0	600	600		
*		0	0	0		
+	200	Salman	Aziz	2/3/1995	854512123	Colony Quetta
+	300	Kiran	Gulzar	2/2/1983	8454512	Prince Road
*		0			0	

Practical: 17

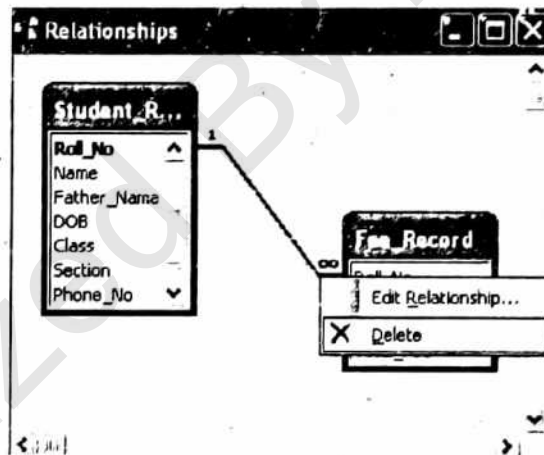
How to delete a relationship and a table?

Deleting a Relationship

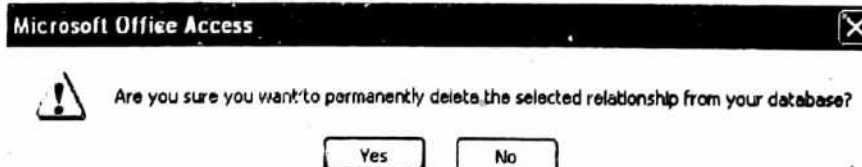
Step 1: Click the Relationships  button on the toolbar.



Step 2: Right click on the black line between two tables.





Step 3: Click on  Delete option to delete the relationship.

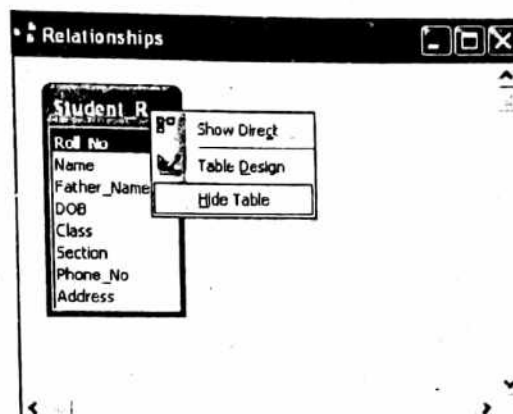


Step 4: Click on  button to complete the process.

Deleting a Table

Step 1: Click the  Relationships button on the toolbar.

Step 2: Click on  Hide Table option to delete the table.



? What is Query?


Query is a request for information from a database. There are three general methods for making queries:

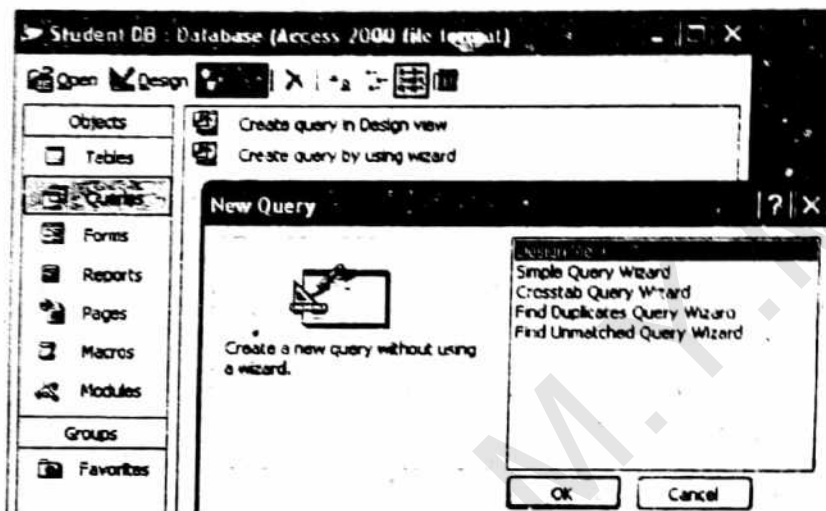
- ❖ **Choosing parameters from a menu:** In this method the database system presents a list of parameters from which you can choose. This is perhaps the easiest way to make a query because the menus guide you but it is also the least flexible.
- ❖ **Query by example (QBE):** In this method the system presents a blank record and lets you specify the fields and values that define the query.
- ❖ **Query language:** Many database systems require you to make requests for information in the form of a stylized query that must be written in a special query language. This is the most complex method because it forces you to learn a specialized language but it is also the most powerful.

Queries select records from one or more tables in a database so they can be viewed, analyzed and sorted on a common datasheet. The resulting collection of records called a dynaset (short for dynamic subset) is saved as a database object and can therefore be easily used in the future. The query will be updated whenever the original tables are updated. Types of queries are select queries that extract data from tables based on specified values, find duplicate queries that display records with duplicate values for one or more of the specified fields and find unmatched queries display records from one table that do not have corresponding values in a second table.

Practical: 18

How to create a query in design view?

Step 1: From the Queries page on the Database Window click the  button.

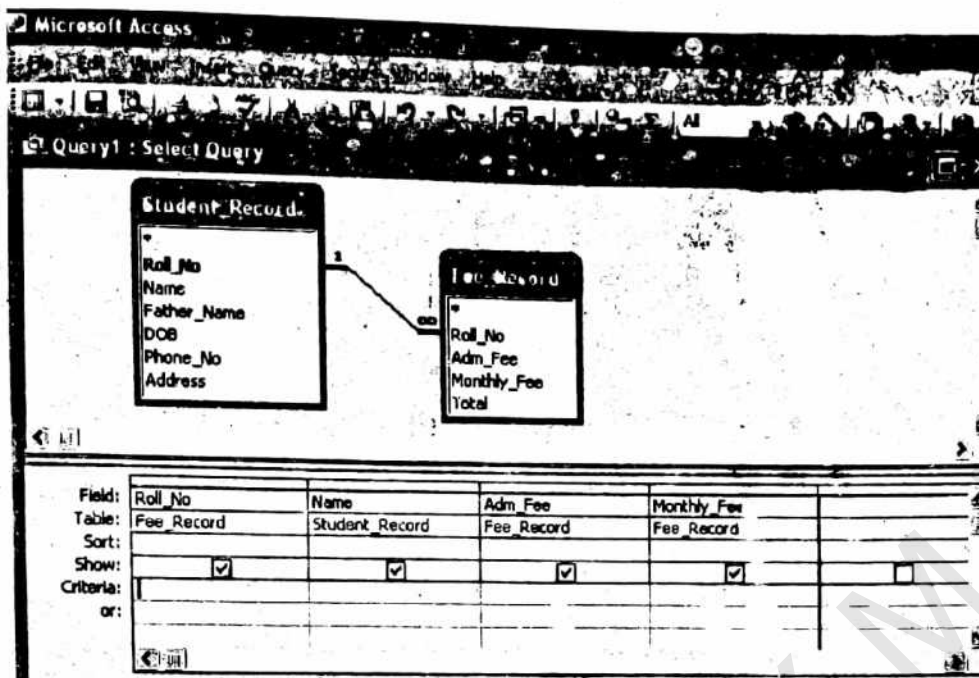



Step 2: Select **Design View** and click **OK**.

Step 3: Select tables and existing queries from the Tables and Queries tabs and click the **Add** button to add each one to the new query.


Step 4: Click Close when all of the tables and queries have been selected.


Step 5: Add fields from the tables to the new query by double-clicking the field name in the table boxes or selecting the field from the **Field:** and **Table:** drop-down menus on the query form. Specify sort orders if necessary.



Step 6: Enter the criteria for the query in the **Criteria:** field. The following table provides examples for some of the wildcard symbols and arithmetic operators that may be used. The Expression Builder  can also be used to assist in writing the expressions.


Query Wildcards and Expression Operators	
Wildcard / Operator	Explanation
? Salman	The question mark is a wildcard that takes the place of a single letter.
18th *	The asterisk is also a wildcard that represents a number of characters.
<9	Value less than 9
>=5	Value greater than or equal to 5
<>"Colony"	Not equal to (all states besides Colony)
Between 1 and 10	Numbers between 1 and 10
Is Null	Finds records with no value
Is Not Null	or all records that have a value
Like "a*"	All words beginning with "a"
>0 And <=10	All numbers greater than 0 and less than 10
"Javed" Or "Salman"	Values are Javed or Salman

Step7: After you have selected all of the fields and tables click the **Run**  button on the toolbar.

Step 8: Save the query by clicking the **Save**  button.

Practical: 19

How to create calculated query in design view?

Step 1: From the Queries page on the Database Window click the  **New** button.

Step 2: Select **Design View** and click **OK**.


Step 3: Select table and click the **Add** button to add each one to the new query.


Fee_Record : Table				
	Roll_No	AdmFee	Monthly_Fee	Total_Fee
	100	1000	200	1200
	200	1500	500	2000
	300	1000	500	1500
	500	1500	500	2000

Step 4: Click Close when table or query have been selected.


Step 5: Add fields from the tables to the new query by selecting the field from the **Field:** and **Table:** drop-down menus on the query form. Specify sort orders if necessary.

Field:	AdmFee	Monthly_Fee	Total_Fee
Table:	Fee_Record	Fee_Record	Fee_Record
Total:	Sum	Sum	Sum
Sort:			
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Criteria:			
or:			

Step 6: Click  button on toolbar to add **Total:** field. Select **Sum** from the **Total:** field to calculate the sum of Admission Fee. Select all fields where the sum is required.

Step 7: After you have selected all of the fields click the **Run**  button on the toolbar.

Query1 : Select Query			
	SumOfAdmFee	SumOfMonthly_Fee	SumOfTotal_Fee
	5000	1700	6700

Step 8: Save the query by clicking the **Save**  button.

Practical: 20

How to create a query by wizard?

Step 1: Access Query Wizard will easily assist you to begin creating a select query. Click the **Create query by using wizard** icon in the database window to have Access step you through the process of creating a query.

Step 2: From the first window, select fields that will be included in the query by first selecting the table from the drop-down Tables/Queries menu.

Simple Query Wizard

Which fields do you want in your query?
You can choose from more than one table or query.

Tables/Queries
Table: Student_Record

Available Fields:

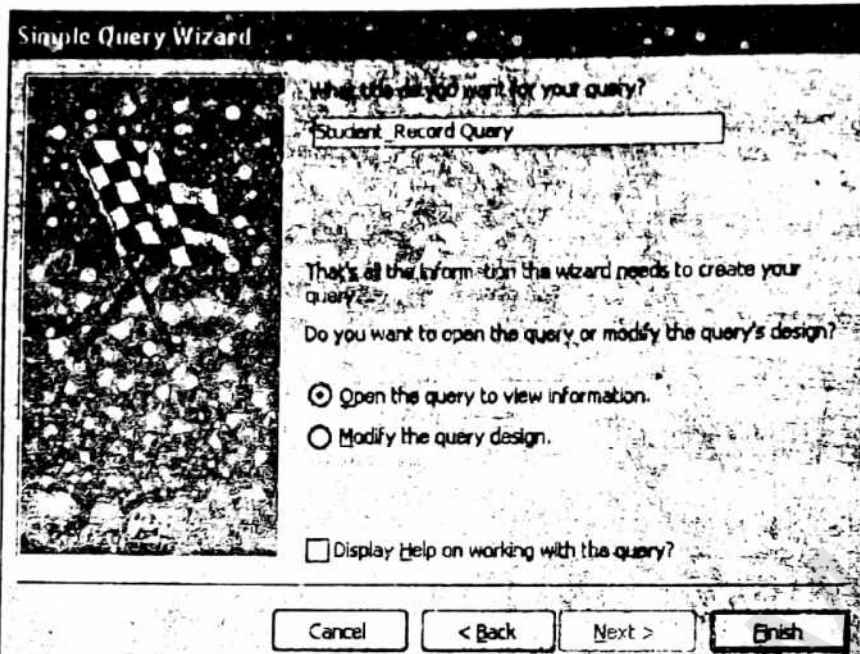
Selected Fields:

Roll_No
Name
Father_Name
DOB
Phone_No
Address

< >>

Cancel < Back Next > Finish

Step 3: Select the fields by clicking the **>** button to move the field from the Available Fields list to Selected Fields. Click the double arrow button **>>** to move all of the fields to Selected Fields. Select another table or query to choose from more fields and repeat the process of moving them to the Selected Fields box. Click **Next >** when all of the fields have been selected.



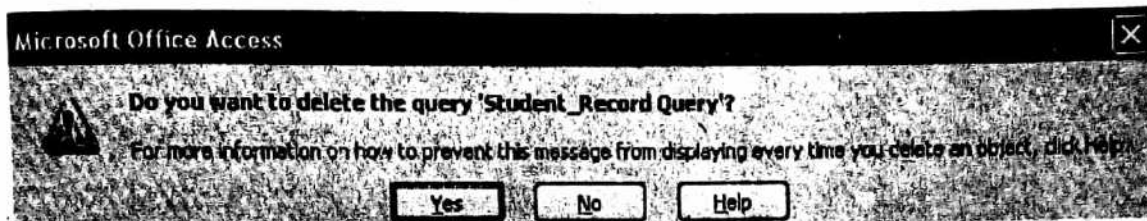
Step 4: On the next window, enter the name for the query and click

Finish.

Practical: 21

How to delete a query?

Step 1: To delete a table from the query click on the table and press the Delete key on the keyboard.



Step 2: Click on  **Yes** button to delete the query.

② What is a Form?

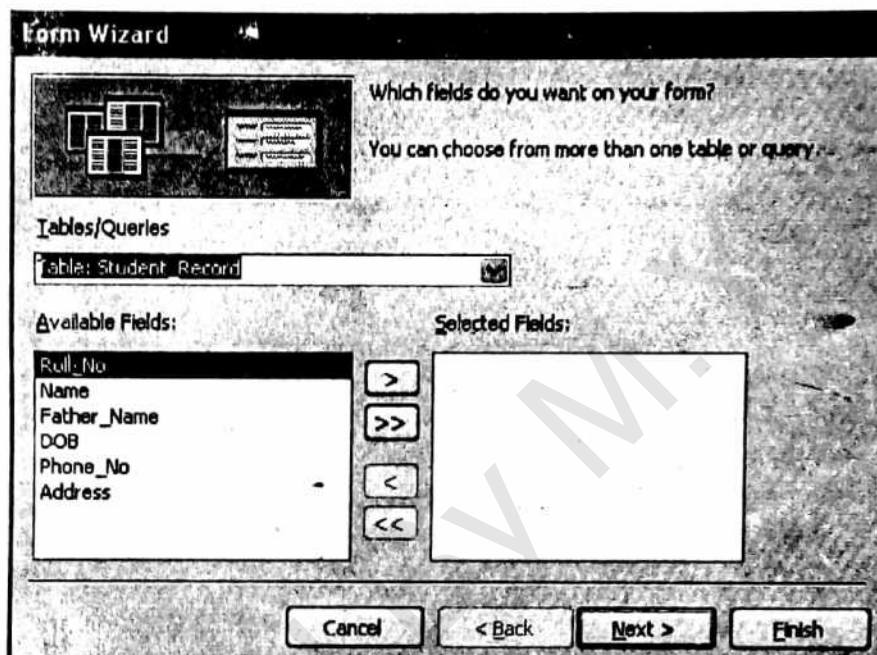
Microsoft Access forms provide a quick and easy way to modify and insert records into your database. They offer an intuitive, graphical environment easily navigated by anyone familiar with standard computer techniques. Creating a form is a quite simple pleasant experience. Forms are used as an alternative way to enter data into a database table.

Practical: 22






How to create a form by using wizard?

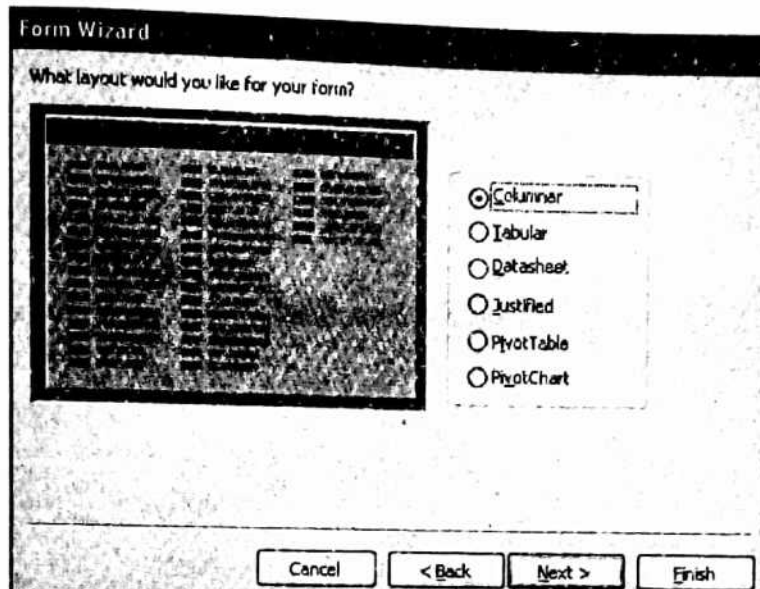
To create a form using the wizard follows these steps:

Step 1: Click the **Create form by using wizard** option on the database window.



Step 2: From the **Tables/Queries** drop-down menu select the table or query whose datasheet the form will modify.

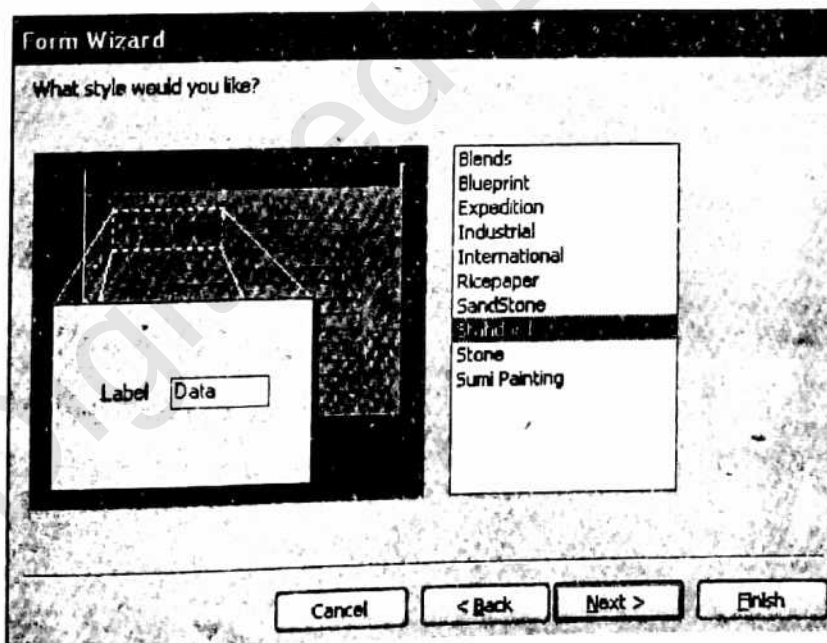
Step 3: Then select the fields that will be included on the form by highlighting each one the Available Fields window and clicking the single right arrow button  to move the field to the Selected Field. window. To move all of the fields to Select Fields click the double right arrow button . If you make a mistake and would like to remove a field or all of the fields from the Selected Fields window click the left arrow  or left double arrow  buttons. After the proper fields have been selected click the  button to move on to the next screen.



Step 4: On the next screen select the layout of the form.

- ❖ **Columnar:** A single record is displayed at one time with labels and form fields listed side-by-side in columns.
- ❖ **Tabular:** Multiple records are listed on the page at a time with fields in columns and records in rows.
- ❖ **Datasheet:** Multiple records are displayed in Datasheet View.
- ❖ **Justified:** A single record is displayed with labels and form fields are listed across the screen.

Step 5: Click the  button to move on to the next screen.



Step 6: Select a visual style for your form and click on  button.

Form Wizard

What title do you want for your form?

That's all the information the wizard needs to create your form.

Do you want to open the form or modify the form's design?

☒ Open the form to view or enter information.
☐ Modify the form's design.

☐ Display help on working with the form?

Cancel < Back Next > Finish

Step 7: On the final screen name the form in the space provided. Select **"Open the form to view or enter information"** to open the form in Form View or **"Modify the form's design"** to open it in Design View. Click **Finish** to create the form.


Student_Record

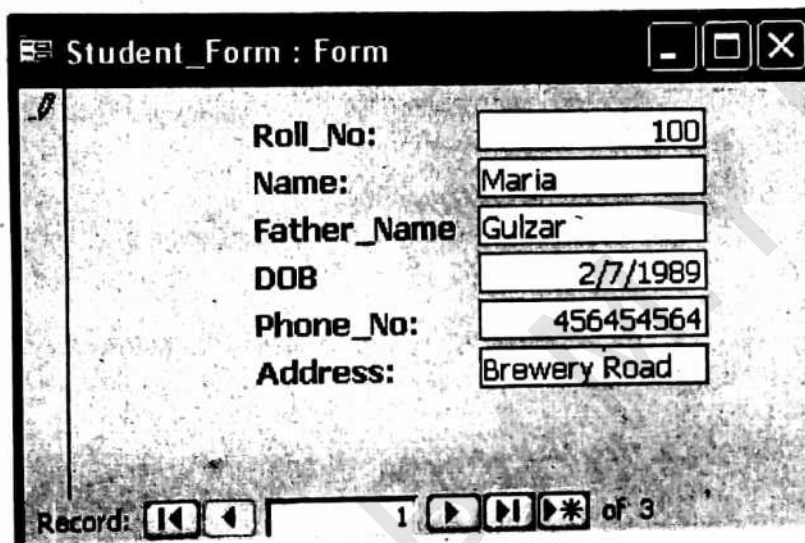
Roll_No	<input type="text" value="100"/>
Name	<input type="text" value="Maria"/>
Father_Name	<input type="text" value="Gulzar"/>
DOB	<input type="text" value="3/5/1989"/>
Phone_No	<input type="text" value="456454564"/>
Address	<input type="text" value="Brewery Road"/>

Record: 1 of 3

Practical: 23

How to add records using a form?

Input data into the table by filling out the fields of the form. Press the Tab key to move from field to field and create a new record by clicking Tab after the last field of the last record. A new record can also be created at any time by clicking the New Record button  at the bottom of the form window. Records are automatically saved as they are entered so no additional manual saving needs to be executed.



Student_Form : Form

Roll_No: 100

Name: Maria

Father_Name: Gulzar

DOB: 2/7/1989

Phone_No: 456454564


Address: Brewery Road

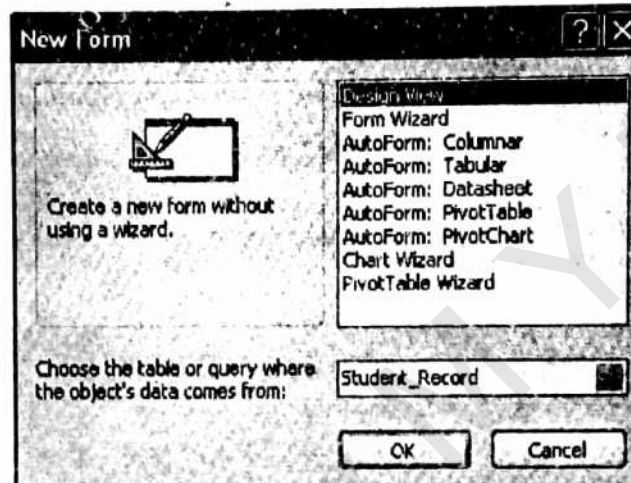
Record: 1 of 3


Practical: 24

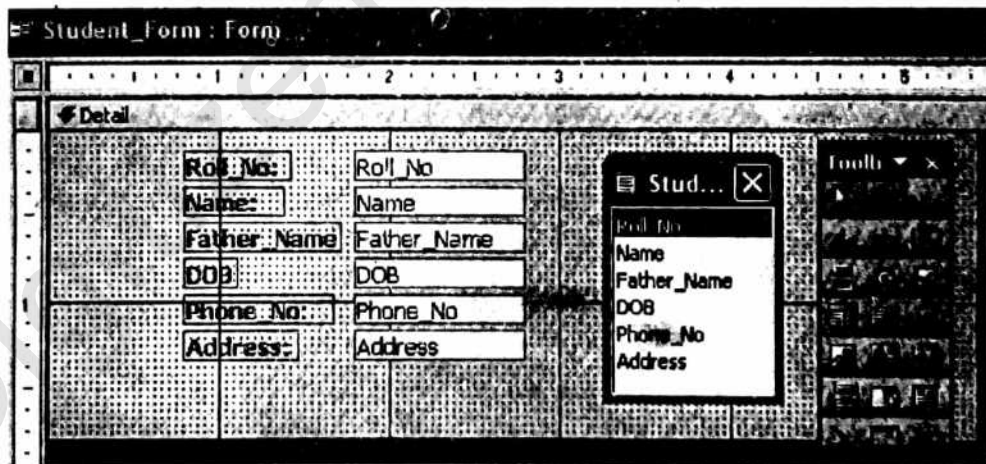
How to create a form in design view?

To create a form without using the wizard, follow these steps:

Step 1: Click the  button on the form database window.



Step 2: Select **Design View** and choose the table/query and click on  button.



Step 3: Select **View** ⇒ **Toolbox** from the menu bar to view the floating toolbar with additional options.



Step 4: Add controls to the form by clicking and dragging the field names from the Field List floating window. Access creates a text box for the value and label for the field name when this action is accomplished.

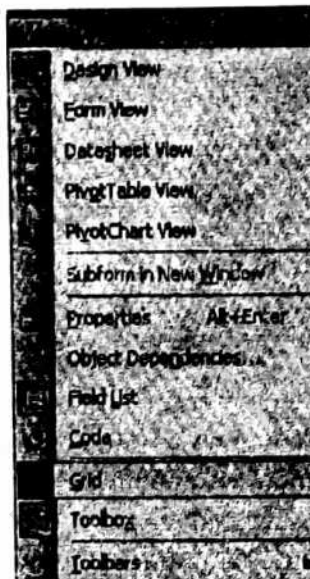
Step 5: To add controls for all of the fields in the Field List, double-click the Field List window's title bar and drag all of the highlighted fields to the form.

Practical: 25

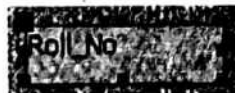
How to editing form design?

The following points use, when you modify your forms in Design View.

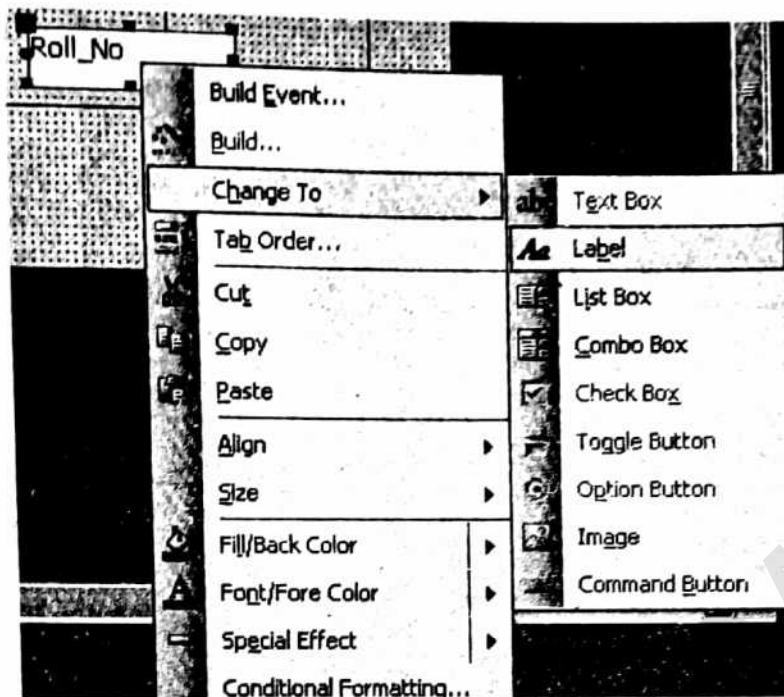
- ❖ **Grid lines:** By default a series of lines and dots underlay the form in Design View so form elements can be easily aligned. To toggle this feature on and off select **View** ⇒ **Grid** from the menu bar.



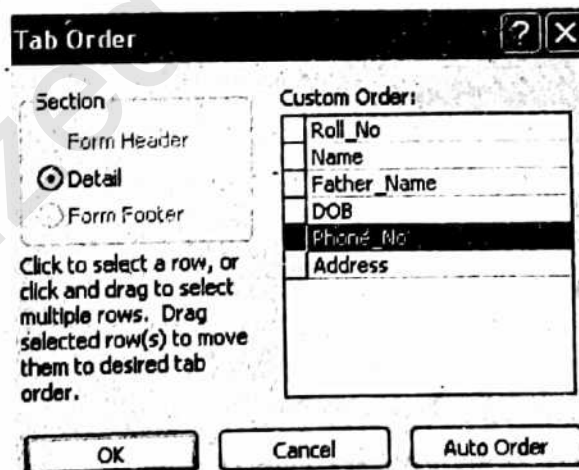
- ❖ **Snap to Grid:** Select **Format** ⇒ **Snap to Grid** to align form objects with the grid to allow easy alignment of form objects or uncheck this feature to allow objects to float freely between the grid lines and dots.
- ❖ **Resizing Objects:** Form objects can be resized by clicking and dragging the handles on the edges and corners of the element with the mouse.



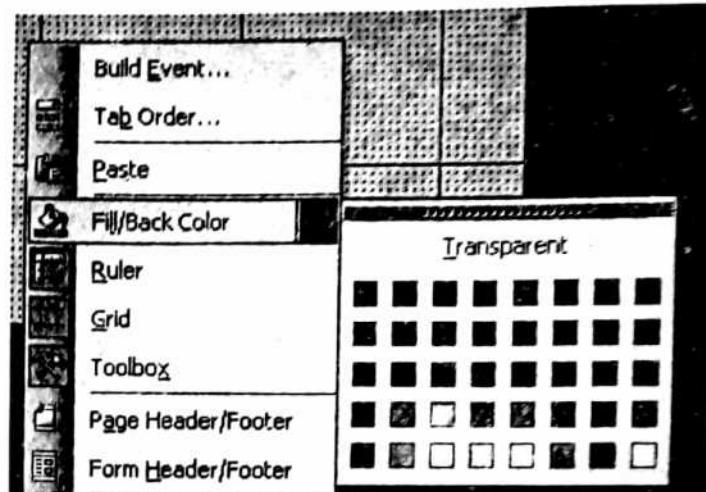
- ❖ **Change form object type:** To easily change the type of form object without having to create a new one, right click on the object with the mouse and select **Change To** and select an available object type from the list.



- ❖ **Label/object alignment:** Each form object and its corresponding label are bounded and will move together when either one is moved with the mouse. However to change the position of the object and label in relation to each other click and drag the large handle at the top, left corner of the object or label.
- ❖ **Tab order:** Alter the tab order of the objects on the form by selecting **View** ⇒ **Tab Order...** from the menu bar. Click the gray box before the row you would like to change in the tab order, drag it to a new location and release the mouse button.



- ❖ **Form Appearance:** Change the background color of the form by clicking the Fill/Back Color button on the formatting toolbar and click one of the color swatches on the palette. Change the color of individual form objects by highlighting one and selecting a color from the Font/Fore Color palette on the formatting toolbar.



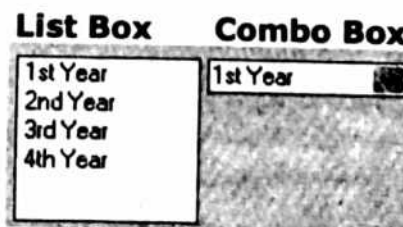
- ❖ The font and size, font effect, font alignment, border around each object, the border width and a special effect can also be modified using the formatting toolbar.
- ❖ **Page Header and Footer:** Headers and footers added to a form will only appear when it is printed. Access these sections by selecting **View** ⇒ **Page Header/Footer** on the menu bar. Page numbers can also be added to these sections by selecting **Insert** ⇒ **Page Numbers...** A date and time can be added from **Insert** ⇒ **Date and Time...** Select **View** ⇒ **Page Header/Footer** again to hide these sections from view in Design View.

? What are the Form Controls?

We have many types of form controls including lists, combo boxes, checkboxes, option groups and command buttons.

? What are the List and Combo Boxes?

If there are small, finite number of values for a certain field on a form, using combo or list boxes may be a quicker and easier way of entering data. These two control types differ in the number of values they display. List values are all displayed while the combo box values are not displayed until the arrow button is clicked to open it as shown in these examples:



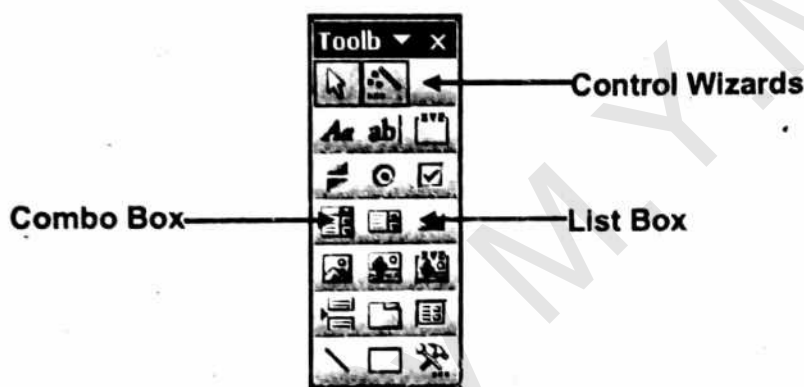
Practical: 26

How to add list box and combo box on form?

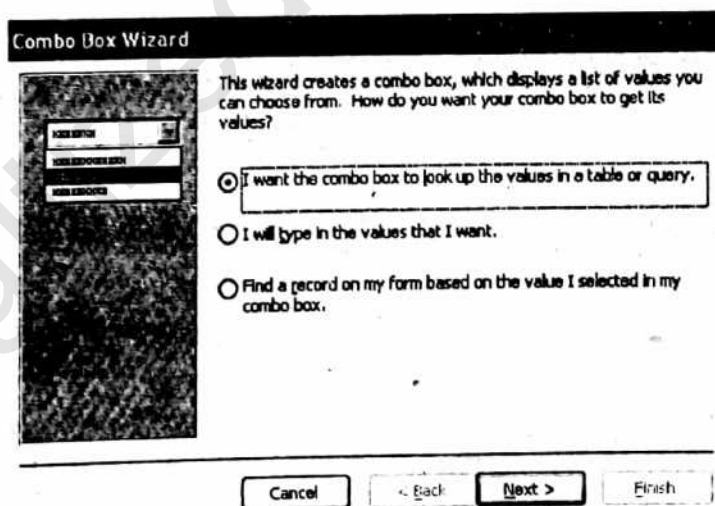
By using a combo or list box, the name of the **Class** does not need to be typed for every record. Instead, it simply needs to be selected from the list. Follow these steps to add a list or combo box to a form:

Step 1: Open the form in **Design View**.

Step 2: Select **View** ⇒ **Toolbox** to view the toolbox and make sure the **Control Wizards** button is pressed in.

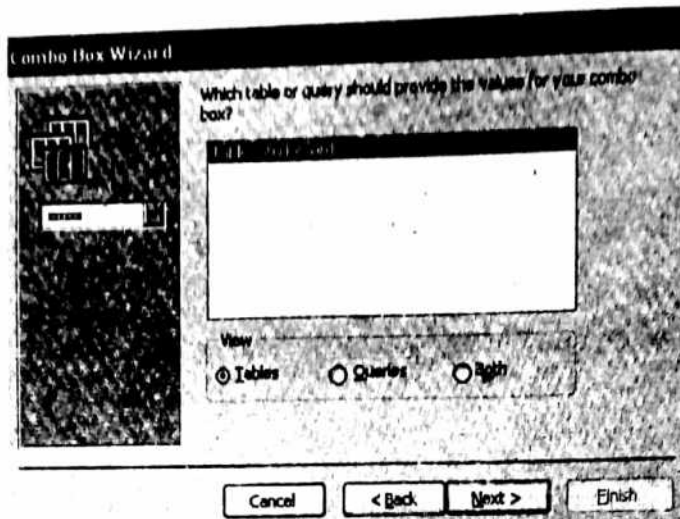


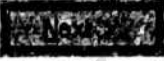

Step 3: Click the list or combo box tool button and draw the outline on the form. The combo box wizard dialog box will appear.




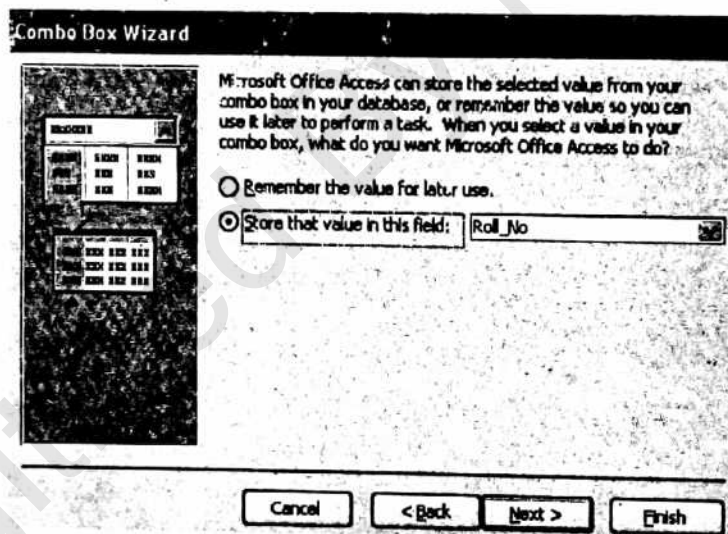
Step 4: Select the source type for the list or combo box values and click






Step 5: Depending on your choice in the first dialog box, the next options will vary. If you chose to look up values from a table or query, the following box will be displayed. Select the table or query from which the values of the combo box will come from. Click  and choose fields from the table or query that was selected. Click  to proceed.

Step 6: On the next dialog box, set the width of the combo box by clicking and dragging the right edge of the column, Click .



Step 7: The next dialog box allows tells Access what to do with the value that is selected. Choose "Remember the value for later use" to use the value in a macro or procedure (the value is discarded when the form is closed) or select the field that the value should be stored in. Click  to proceed to the final screen.

Step 8: Type the name that will appear on the box's label and click on .

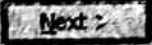
? What are the Check Boxes and Option Buttons?

Use check boxes and option buttons to display yes/no, true/false or on/off values. Only one value from a group of option buttons can be selected while any or all values from a check box group can be chosen. Typically, these controls should be used when five or less options are available. Combo boxes or lists should be used for long lists of options.

Practical: 27

How to add checkbox and option button on form?

Step 1: Click the Option Group tool on the toolbox and draw the area where the group will be placed on the form with the mouse. The option group wizard dialog box will appear.

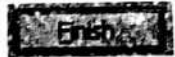
Step 2: On the first window, enter labels for the options and click the tab key to enter additional labels. Click  when finished typing labels.

Step 3: On the next window, select a default value if there is any and click **Next >**.

Step 4: Select values for the options and click **Next >**.

Step 5: Choose what should be done with the value and click **Next >**.

Step 6: Choose the type and style of the option group and click **Next >**.

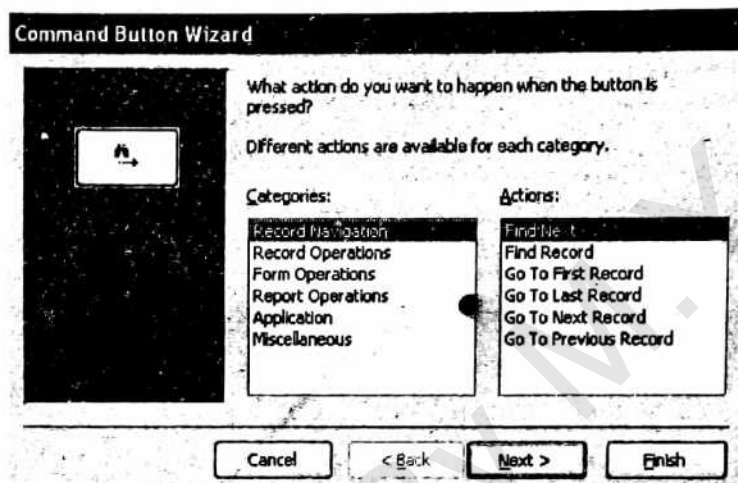
Step 7: Type the caption for the option group and click .


Practical: 28

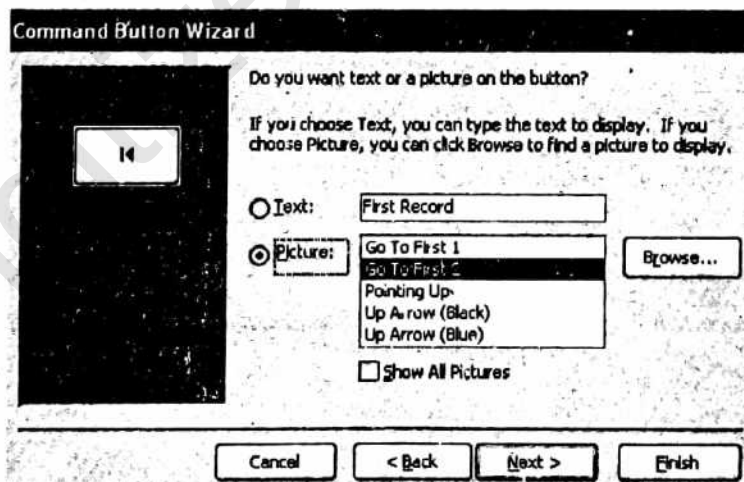
How to add command button on form?

Step 1: Open the form in Design View and ensure that the Control Wizard button on the toolbox is pressed in.


Step 2: Click the  command button icon on the toolbox and draw the button on the form. The Command Button Wizard will then appear.

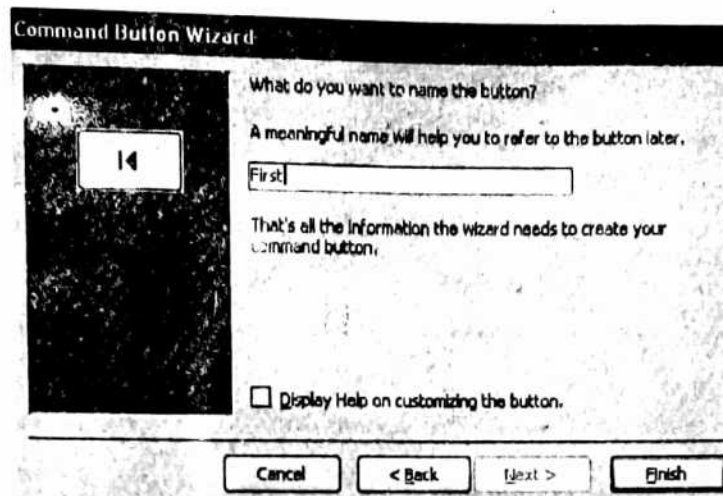




Step 3: On the first dialog window, action categories are displayed in the left list while the right list displays the actions in each category. Select an action for the command button and click .



Step 4: The next few pages of options will vary based on the action you selected. Continue selecting options for the command button.

Step 5: Choose the appearance of the button by entering caption text or selecting a picture. Check the Show All Pictures box to view the full list of available images, Click .



Step 6: Enter a name for the command button and click , the following  button appears on your form.

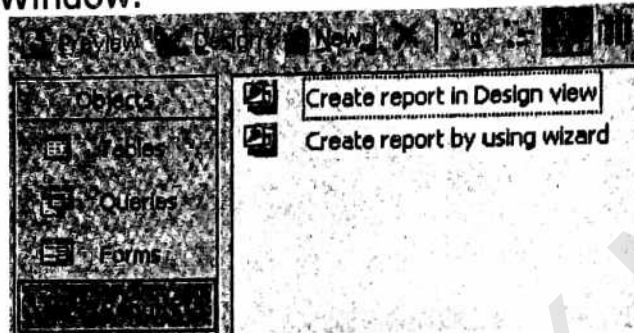
What is Report?

A report is an effective way to present your data in a printed format. Because you have control over the size and appearance of everything on a report, you can display the information the way you want to see it. Reports will organize and group the information in a table or query and provide a way to print the data in a database.

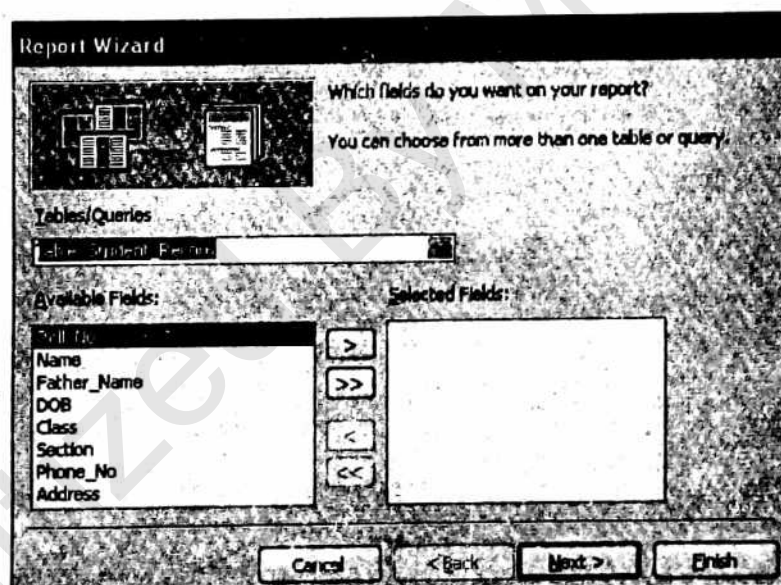
Practical: 29

How to create report by wizard?

Step 1: Double-click the **Create report by using wizard** option on the Reports Database Window.



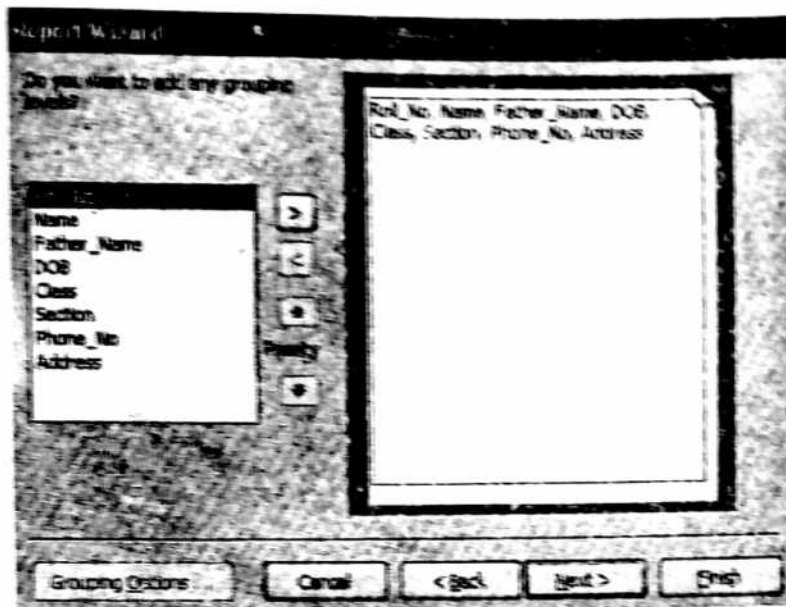
Step 2: Select the information source for the report by selecting a table or query from the **Tables/Queries** drop-down menu.






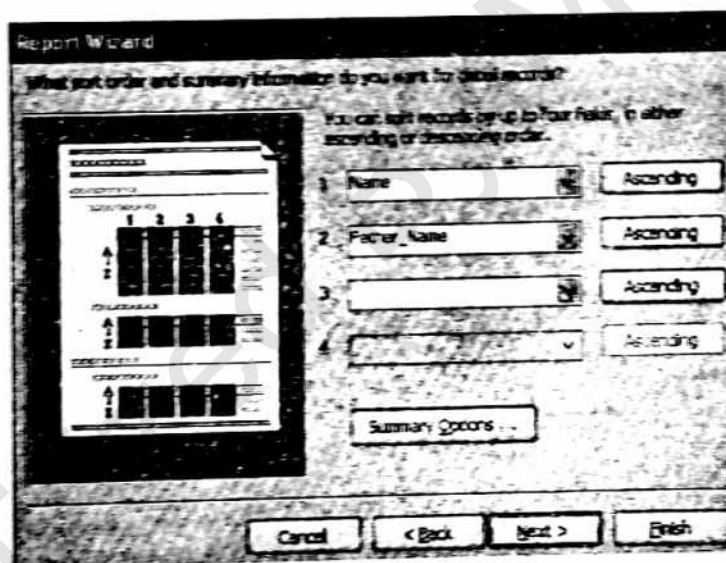
Step 3: Select the fields that should be displayed in the report by transferring them from the Available Fields menu to the Selected Fields window using the single right arrow button to move fields one at a time or the double arrow button to move all of the fields at once.


Step 4: Again select table or query from the **Tables/Queries** drop-down menu if you want to add next table/query.

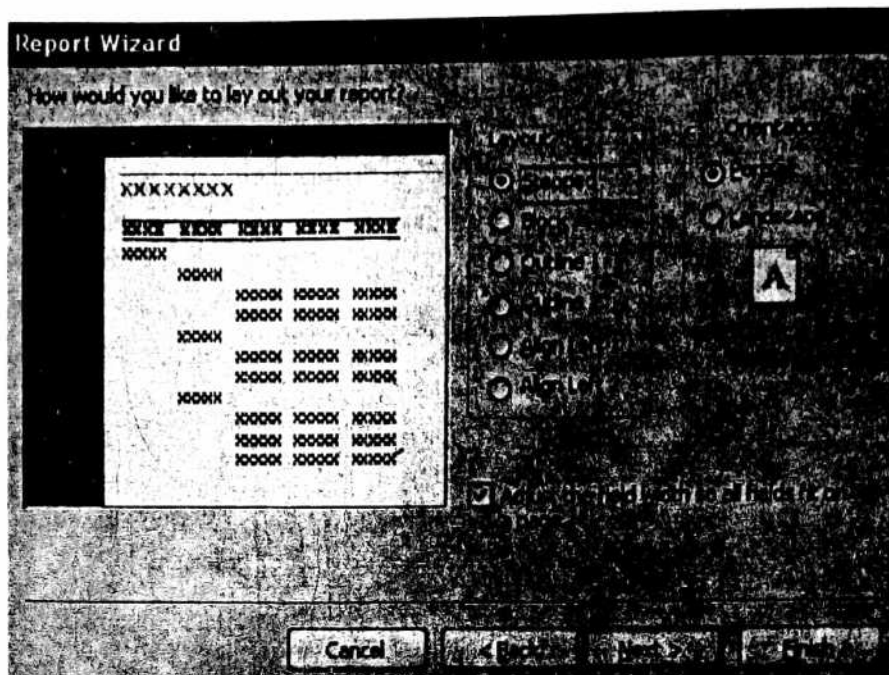
Step 5: Click the **Next >** button to move to the next screen.



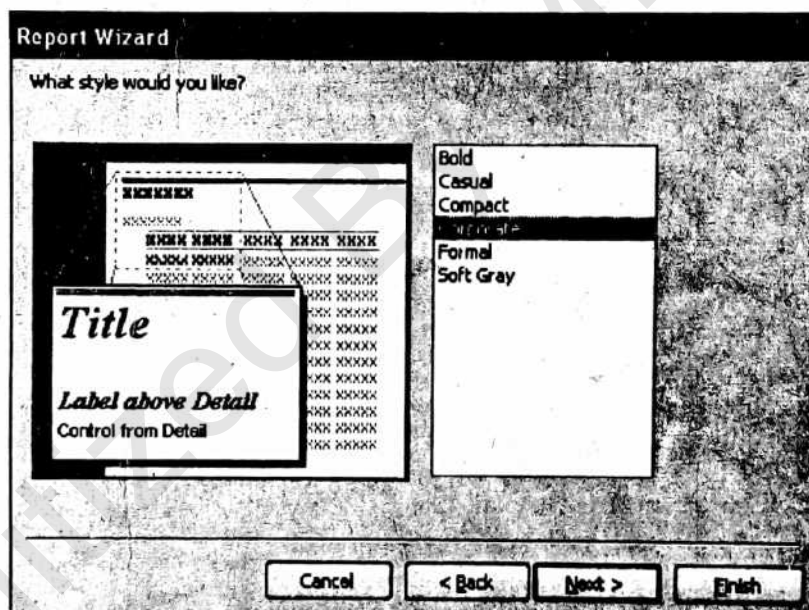
Step 4: Select fields from the list that the records should be grouped by and click the right arrow button  to add those fields to the diagram. Use the Priority buttons  to change the order of the grouped fields if more than one field is selected. Click  to continue.



Step 5: If the records should be sorted, identify a sort order here. Select the first field that records should be sorted by and click the A-Z sort button to choose from ascending or descending order. Click  to continue.

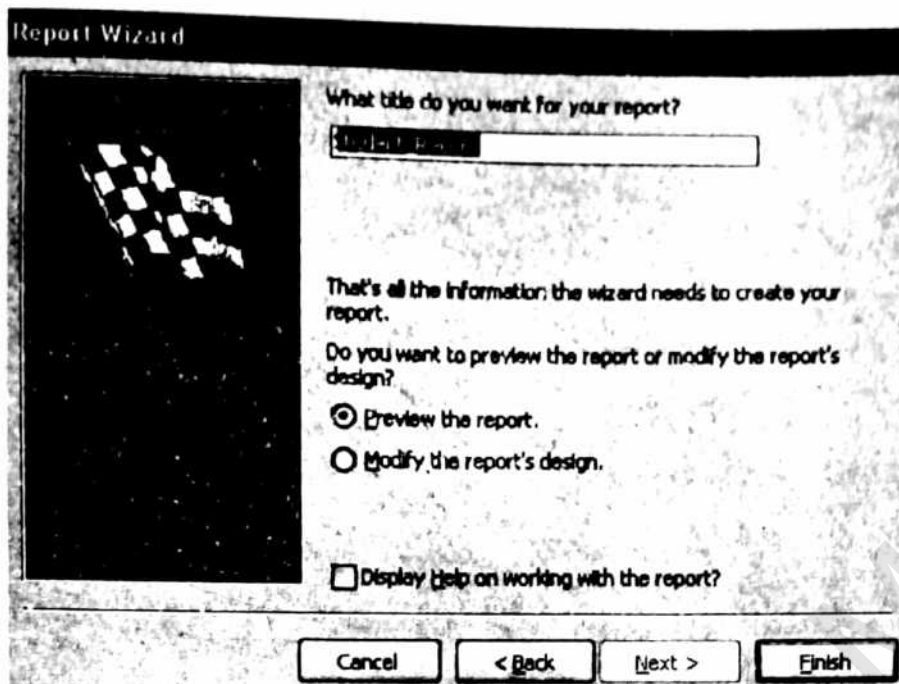



Step 6: Select a layout and page orientation for the report and click



Step 7: Select a color and graphics style for the report and click







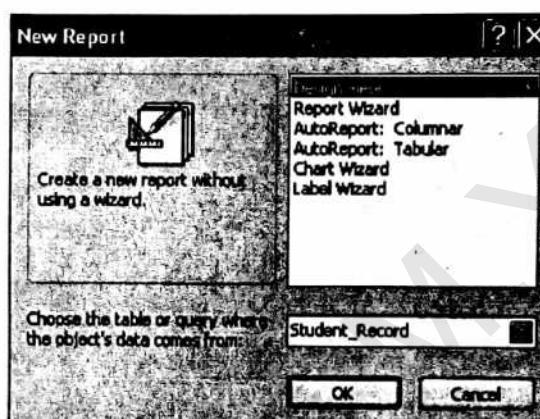
Step 8: On the final screen, name the report and select to open it in either Print Preview or Design View mode. Click the  button to create the report.

Practical: 30

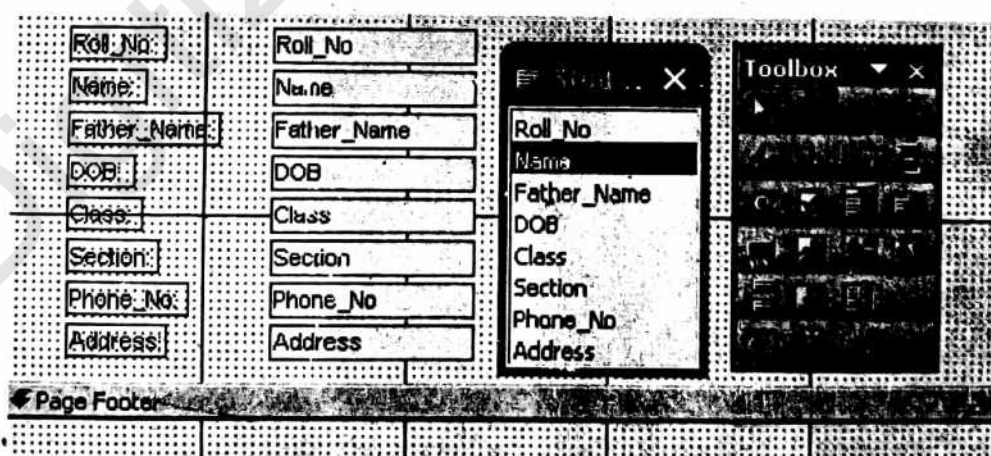
How to create report in design view?

Step 1: Select  from the Reports Database Window.

Step 2: Click the  button on the Reports Database Window. Highlight **Design View** and choose the data source of the report from the drop-down menu and click on  button.

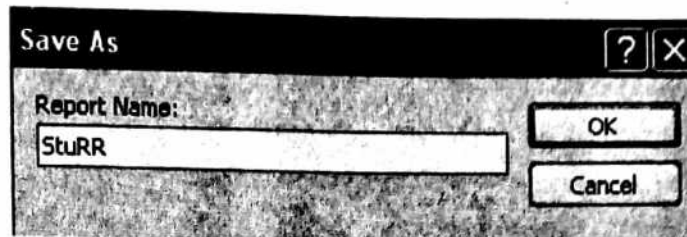


Step 3: You will be presented with a blank grid with a Field Box and form elements toolbar that looks similar to the Design View for forms. Design the report in much the same way you would create a form. For example, double-click the title bar of the Field Box to add all of the fields to the report at once. Then, use the handles on the elements to resize them, move them to different locations and modify the look of the report by using options on the formatting toolbar.



Step 4: Click the **Print View** button at the top left corner of the screen to preview the report, click on **X** to close the view.

Step 5: Click on **Save** button to save the report.

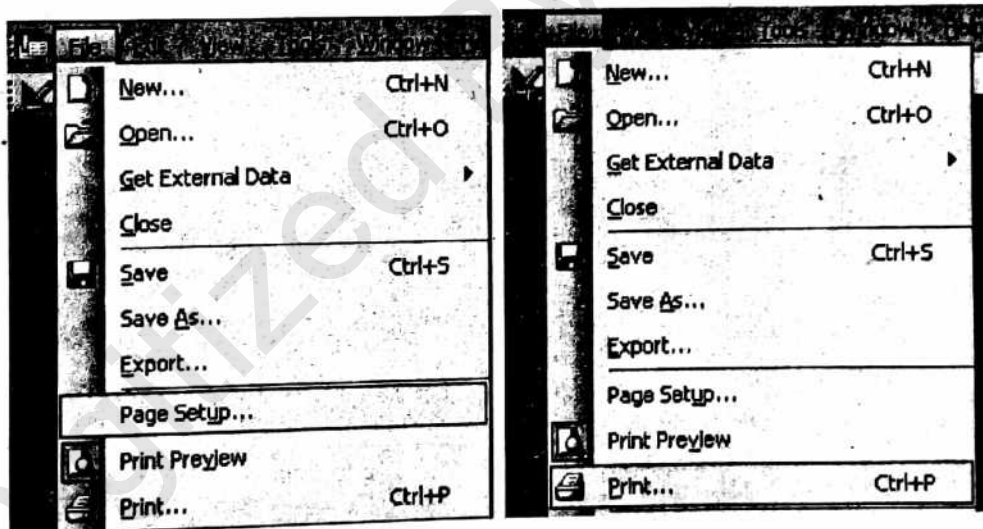


Step 6: Type the name of the Report as **StuRR** and then Click on **OK** button to complete the process.

Practical: 31

How to print a report?

Step 1: Select **File** ⇒ **Page Setup** to modify the page margins, size, orientation and column setup.



Step 2: After all changes have been made, print the report by selecting **File** ⇒ **Print** from the menu bar (OR) click the **Print** button on the toolbar.

Digitized By M.Y.M.B